

PRECONVENTION ISSUE



THE BIOLOGIST



Vol. XIX, No. 2

December, 1937



FEATURING WISCONSIN

PHI SIGMA

BIOLOGICAL HONOR SOCIETY

"The object of Phi Sigma is to promote interest in biological research. Although originally designated as an honorary biological research society, it should now be considered as a working guild of biologists interested in research. In effect, election to Phi Sigma should be an opportunity for better work, rather than merely election to an honorary society."

Mile Posts:

- 1915 March 17, Alpha Chapter organized, Ohio State University.
- 1916 May, Central Governing Body organized, BIOLOGIST first issued.
- 1917 June, last War-time BIOLOGIST issued.
- 1921 February, BIOLOGIST revived.
- 1924 December, First National Convention, Constitution revised, Washington, D. C.
- 1925 December, Second National Convention, First Scientific Program, Kansas City.
- 1926 December, Third National Convention, Second Science Program, Philadelphia.
- 1927 December, Third Science Program, Nashville.
- 1928 December, Fourth National Convention, Coat-of-Arms adopted, Fourth Science Program, New York.
- 1930 January, Council Meeting, Ritual Revised, Norman, Okla.
December, Fifth National Convention, Fifth Science Program, Cleveland.
- 1931 Phi Sigma Letters Registered, U. S. Patent Office.
- 1932 December, Sixth Science Program, Atlantic City.
- 1933 June, Sixth National Convention, Seventh Science Program, Chicago.
- 1935 December, Seventh National Convention, Eighth Science Program, St. Louis.

Expansion:

The Constitution provides that: "An active chapter may be established in any institution of learning which requires for graduation the equivalent of four years of collegiate work, and which is equipped with facilities for research work. - - - Any petitioning group must be active for at least one year before it may be granted a charter."

THE BIOLOGIST

Vol. XIX

Denver, Colo., December, 1937

No. 2

Copyright 1937 by the Phi Sigma Society, an organization devoted to the promotion of interest in biological research, founded at Ohio State University, March 17, 1915. The Biologist is the official quarterly publication of the society, issued ordinarily in October, December, February and April, as a medium of exchange between chapters, as an interpreter of Council policies, and as a stimulus to the fellowship in science for which Phi Sigma stands.

COUNCIL

HONORARY PRESIDENT

Dr. Alexander G. Ruthven (Beta '30)
President of the University of
Michigan,
Ann Arbor, Michigan

CHANCELLOR

Dr. Paul A. Warren (Beta '20)
Botany Department,
Tufts, College,
Medford, Massachusetts

VICE-CHANCELLOR

Dr. Melville H. Hatch (Beta '18)
University of Washington,
Seattle, Washington

SECRETARY

Dr. A. I. Ortenburger (Beta '19)
Zoology Department,
University of Oklahoma,
Norman, Oklahoma

TREASURER

Erwine Hall Stewart (Epsilon '17)
Mesa, Colorado

EDITOR

Dr. Anselm M. Keefe (Zeta '24)
St. Norbert College,
West DePere, Wisconsin

CONTENTS

SPECIAL FEATURES

Edward Asahel Birge..... 37

Biological Research at Wisconsin 39
Robert E. Duncan

Zeta Chapter's Honorary Members 50

COUNCIL NOTES

The National Chancellor Speaks 57
Paul A. Warren

The National Convention..... 59
A. I. Ortenburger

Who Are the Council? 60
Anselm M. Keefe

A Former National Secretary
Speaks 62
C. I. Reed

REGULAR FEATURES

Editorials 68

Chapter News Letters..... 71

Book Reviews 97

Advertising 100

DIRECTORY

OF ALL ACTIVE AND INACTIVE CHAPTERS

The list of chapter officers will be found in the CHAPTER NEWS section

ALPHA

Ohio State University, Columbus, Ohio, founded March 17, 1915, (Inactive).

BETA

University of Michigan, Ann Arbor, Michigan, founded June 3, 1916.

DELTA

University of Maine, Orono, Maine, founded January 27, 1917.

EPSILON

University of Denver, Denver, Colorado, founded March 5, 1917.

ZETA

University of Wisconsin, Madison, Wisconsin, founded May 30, 1917.

ETA

University of Akron, Akron, Ohio, founded April 20, 1921.

THETA

Michigan State College, East Lansing, Michigan, founded April 9, 1921.

IOTA

Washington University, St. Louis, Missouri, founded May 28, 1921.

KAPPA

University of Kansas, Lawrence, Kansas, founded May 31, 1921.

LAMBDA

University of Montana, Missoula, Montana, founded May 4, 1921.

MU

University of California, Berkeley, California, founded April 27, 1922.

NU

Washington and Jefferson College, Washington, Pennsylvania, founded May 11, 1922.

XI

University of Nebraska, Lincoln, Nebraska, founded May 3, 1934.

OMICRON

University of North Dakota, Grand Forks, North Dakota,
founded May 26, 1924, (Inactive).

PI

Emory University, Georgia, founded January 3, 1925.

RHO

University of Illinois, Urbana, Illinois, founded March 28, 1925.

SIGMA

University of Florida, Gainesville, Florida, founded December 4, 1925.

TAU

Duke University, Durham, North Carolina, founded March 4, 1926.

UPSILON

Miami University, Oxford, Ohio, founded May 7, 1926.

PHI

University of New Hampshire, Durham, New Hampshire, founded May 21, 1926.

CHI

Montana State College, Bozeman, Montana, founded February 11, 1927.

PSI

University of Washington, Seattle, Washington, founded April 7, 1928.

OMEGA

University of Oklahoma, Norman, Oklahoma, founded March 24, 1928.

ALPHA ALPHA

University of Southern California, Los Angeles, California, founded May 17, 1930.

ALPHA BETA

Mount Union College, Alliance, Ohio, founded May 17, 1928.

ALPHA GAMMA

University of South Dakota, Vermillion, South Dakota, founded May 15, 1928, (Inactive).

ALPHA DELTA

Lawrence College, Appleton, Wisconsin, founded March 7, 1929.

ALPHA EPSILON

University of Pittsburgh, Pittsburgh, Pennsylvania, founded March 23, 1929.

ALPHA ZETA

College of William and Mary, Williamsburg, Virginia, founded April 19, 1930.

ALPHA ETA

Oklahoma Agricultural and Mechanical College, Stillwater, Oklahoma,
founded March 13, 1930.

ALPHA THETA

State College of Washington, Pullman, Washington, founded May, 1930.

ALPHA IOTA

Bucknell University, Lewisburg, Pennsylvania, founded January 9, 1932.

ALPHA KAPPA

Hunter College, New York City, founded January 8, 1932.

ALPHA LAMBDA

University of Utah, Salt Lake City, Utah, founded February 13, 1932.

ALPHA MU

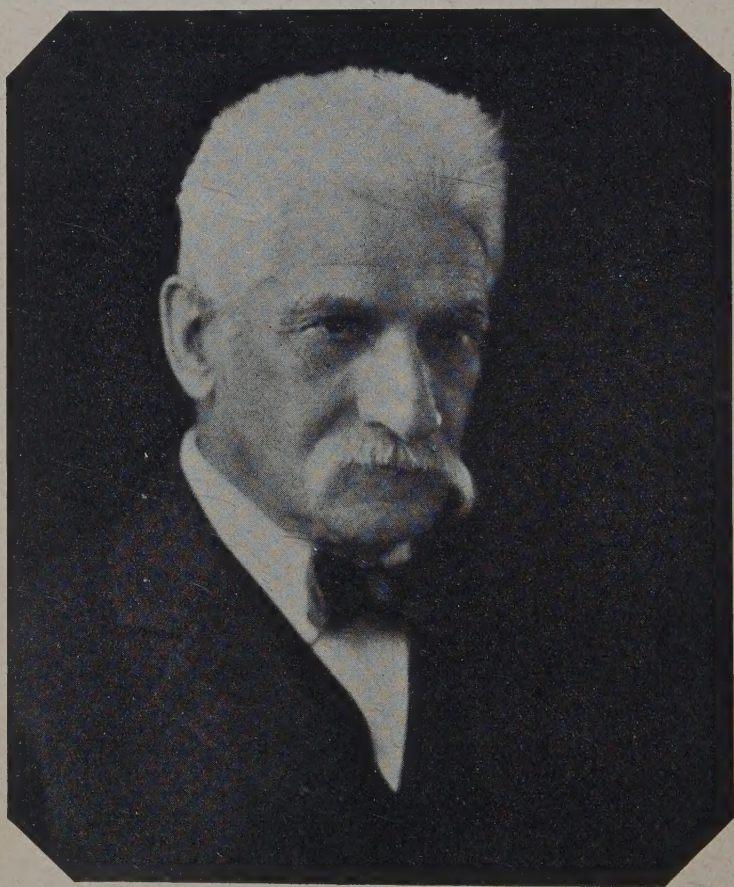
University and State Agricultural College of Oregon, Eugene-Corvallis, Oregon,
founded November 18, 1933.

ALPHA NU

University of New Mexico, Albuquerque, New Mexico, founded April 21, 1935.

ALPHA XI

Rhode Island State College, Kingston, Rhode Island, founded May 17, 1935.



EDWARD ASAHIEL BIRGE

DR. EDWARD ASAHEL BIRGE

NO one can think of the development of zoology at Wisconsin or of the growth of limnology in the United States without thinking at once of Dr. Birge. He has been successively professor and chairman in the department of zoology, dean of the college of letters and science, and president of the University of Wisconsin. Through it all he has consistently maintained his interest and activity in his chosen field of research. Today as president-emeritus of the university and director of the natural history survey of the state he is as active as ever, putting many of his younger associates to shame by his industry. A hard worker himself, he expects, encourages and stimulates the same attitude in others. His direct, keen, decisive manner has made him respected as an executive, his steady purpose and untiring energy in the furthering of his research have won him a place among the foremost limnologists of the world. His crisp wit and rugged Puritan character have made him admired as a man. Because of his thorough knowledge of the classics and breadth of information in the fields of science, philosophy and literature he is welcomed in scholarly circles everywhere. To have achieved half as much as this in a lifetime would seem to most of us an enviable record. To have done it all and to remain still, in his eighty-fifth year, busy at the task of advancing knowledge in his research field has made Dr. Birge a challenge and an inspiration to the younger men who have known him.



LINCOLN
TERRACE

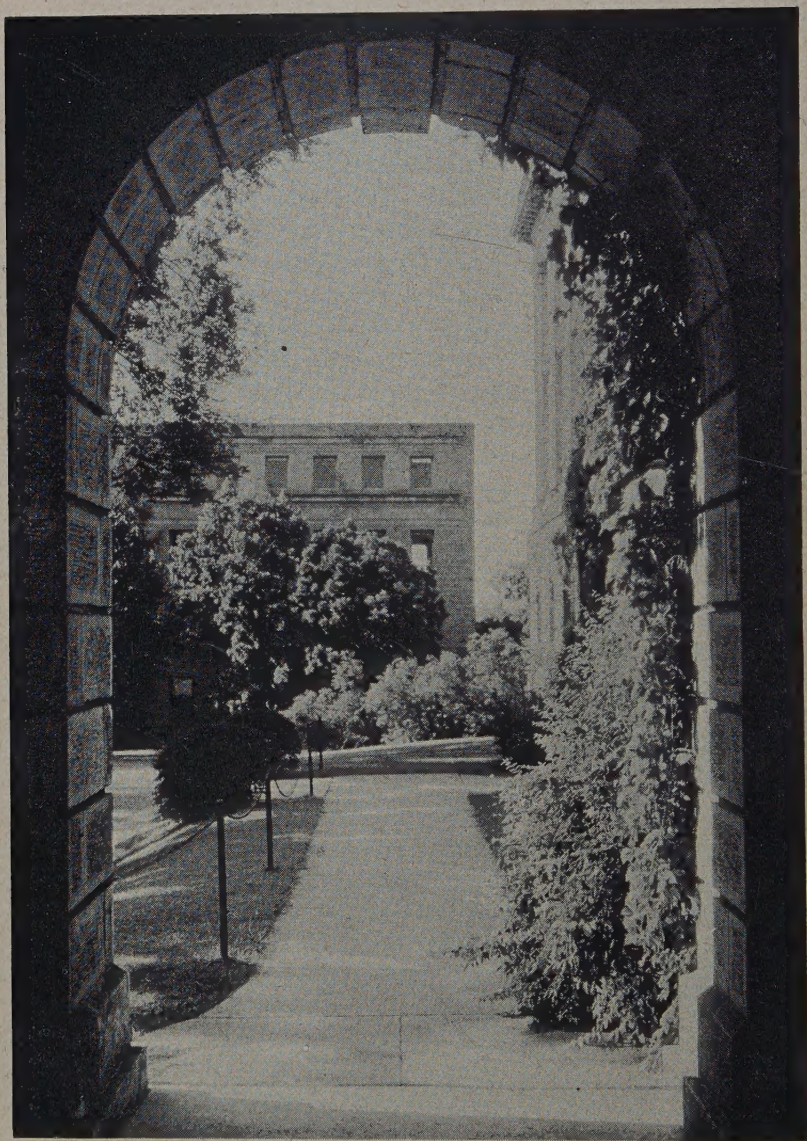
BIOLOGICAL RESEARCH AT WISCONSIN

By ROBERT E. DUNCAN

WHILE in no way regimented, scientific research at the University of Wisconsin has been critically examined by a Committee on Science Inquiry. Their integration of the social and natural sciences have resulted in a number of periodical bulletins, each of which treat some phase of common social problems and relate research in a university to practicalities. After a fashion, such a survey and the resultant reports meet the age-old criticism of economic waste in useless—to laymen—research. After a fashion, it obviates duplication of departmental programs and aids in correlating the shares of projects carried on by several departments. Such a survey definitely points out the necessity of concerted efforts of research workers to fill various needs felt by society at large. Programs have been devised to fit such situations in many cases, and are now being carried to completion.

To date the bulletins have been "The University and the Erosion Problem", "The University and Transportation", "The University and the Fight against Crime", "The University and Conservation of Wildlife", "The University and Conservation of Wisconsin Waters", and "The University and the Conservation of Wisconsin Minerals". Copies may be secured from Dr. E. B. Fred, Dean of the Graduate School. Each is well calculated to summarize the present status and to point out other possible avenues of approach to the problem. Another outgrowth of Science Inquiry is the Committee on Plant Science which was organized from members of the interested departments to survey the whole field of pure and applied botany. The committee has devised a program in an attempt to aid the potato growers of the state. Studies on the potato viroses, improvement of varieties, and blackening of tuber tissue are being conducted in the Botany, Genetics, and Agricultural Chemistry Departments respectively.

Funds for research come from varied sources including the Wisconsin Alumni Research Foundation, special University appropriations, grants from the State and Federal Governments, and private or industrial contributions. Of these three the first is by far the most active in supporting biological research while the University appropriations are devoted, in the greater part, to research in the social sciences. Funds of the last class are generally earmarked for some particular use.



The Biology Building through Bascom Hall Arches

The Wisconsin Alumni Research Foundation draws its income from patentable ideas submitted by alumni and staff members or gifts and estates held in trust. The first of the former class, both in point of time and in value of income yielded, is the Steenbock process for irradiation to increase the Vitamin D content of foods. Recently the Foundation has come into possession of several patents which promise to increase the annual income.

The Wisconsin Alumni Research Foundation contributed all its interest income to the support of basic scientific research in all the natural sciences. This, for the present year, has been allotted by the University Research Committee to some 90 projects which in turn will support in part approximately 120 graduate students. These students will work upon special phases of the problem under the direction of the professor in charge. In addition, the Foundation awarded this year 38 fellowships and scholarships which enables graduate students to work upon problems of their choice under the direction of their major professor. Furthermore, the Foundation provides salaries for professorial leaves of absence, completion of research programs and for summer research of staff members in order that such staff members may have opportunity to bring together the results of their research.

By University appropriations a large number of fellowships and scholarships are maintained. These aids are mainly direct and entail only minor service to the department in which the appointment is made and the research project is entirely left to the choice of the student. The teaching assistant also has the same freedom of choice but owes more service to the University. In recompense, this class receives larger remittance of fees and higher salary.

Industrial donors provide funds, in some instance, for research under controlled conditions. The personnel of such programs is in the hands of the University authorities who generally appoint qualified graduate students.

The Biological Division represents the Forest Products Laboratory and twenty-five departments from three colleges of the University. The purpose of this unit is to harmonize requirements for candidacy to higher degrees, to integrate the students' course work until the completion of their requirements, and to avoid duplication of course work in departments of the various colleges. On the following pages is a list of the members and brief statements of their facilities, courses, and special researches.

The Department of Agricultural Bacteriology is equipped for instructional and research work in microbiology of foods, of milk and milk products, and of soils. There are special facilities for study of the chemistry of fermentations and the Frascch funds are applied to the study of root nodule bacteria. In addition, attention is given to the question of the significance of acid fast bacteria in animals and certain animal diseases.

The Department of Agricultural Chemistry, housed in a relatively new building, carries on research in plant and animal nutrition. Green-



Wisconsin's Campus from the Air

houses are available for the former study and connections with the Departments of Animal Husbandry and Poultry Husbandry, allow experiments with domestic animals. Studies, in conjunction with the Department of Agricultural Bacteriology, of fermentation chemistry are made. Courses in biochemistry of plants, animal metabolism, fermentation, dairy products, and carbohydrates are offered.

The Department of Agronomy is located in a new building equipped for teaching courses in pasture and forage problems, crop identification and standards, and seed and weed control. The State Seed Inspection

Laboratory is maintained in connection with the Department; in addition the headquarters of the Wisconsin Agricultural Experiment Station are located in the same building. Greenhouse facilities are available. Special researches are breeding for disease resistance, corn hybridization, seed longevity, winter killing, and relation of root reserves of weeds and grasses to cutting and growth responses.

Department of Anatomy offers courses in gross and microscopic structures and embryology of mammals with especial reference to man. Some attention is paid the lower animal types of interest in medicine. The laboratory is equipped for advanced research by qualified students or independent investigators.

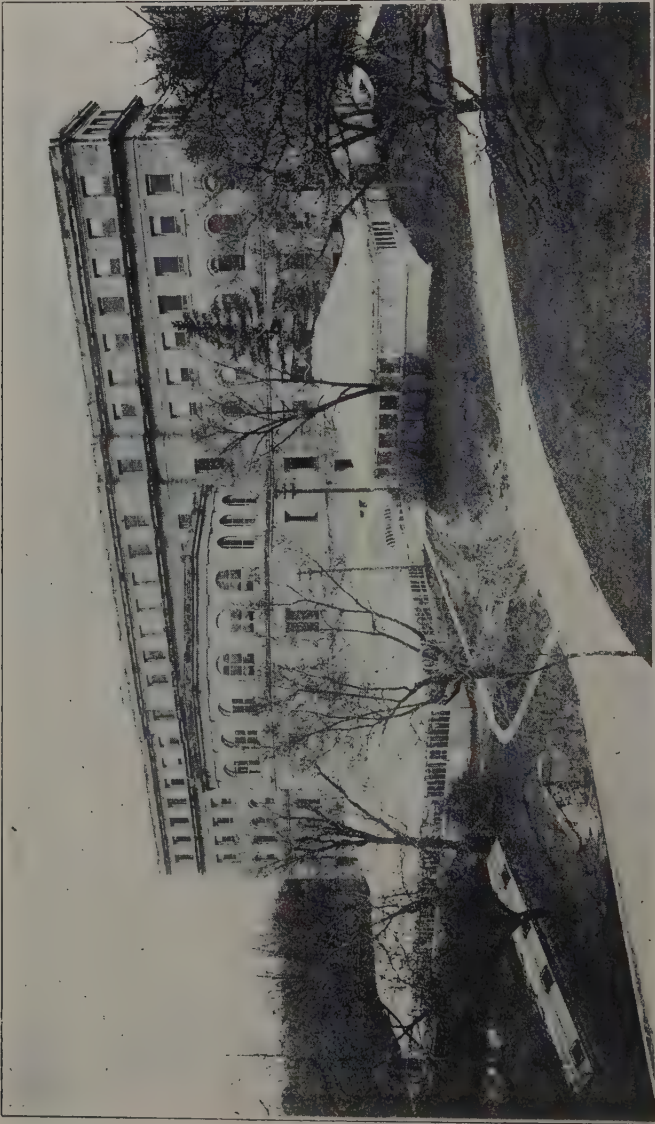
The Department of Animal Husbandry, in collaboration with other departments, gives graduate work in nutritional studies, livestock production, and genetical investigation. A large amount of livestock is maintained.

The Department of Botany is located in the Biology Building. In addition to those for elementary work special laboratories are maintained for courses in plant anatomy and histology, morphology, mycology, taxonomy of native and cultivated forms, cytology, physiology and ecology. Special provisions for research are physiological dark and constant temperature rooms, refrigeration rooms, photographic equipment and dark rooms, herbarium, greenhouses, chemical laboratory, and an ultramicroscope. Active lines of research are genetics and cytology of the Hepaticae, the cytology of special forms of students' election, causal agency of virus diseases, lethal effects of radiation, photosynthesis, effect of growth promoting substances, biophysical constants of plant saps, physiology of the fungi, sex mechanism in the Ascomycetes, life history and collection reports of water molds and chytrids, classification and distribution of the Clavarias, morphology of economic plants, and classification and distribution of Wisconsin flowering plants.

The Department of Economic Entomology occupies King Hall. Equipment includes a glass insectary, rearing cages, outdoor breeding cages, and if necessary, greenhouse facilities. Four main lines of research are offered: problems relating to the honey bee and its products, insect transmission of plant diseases, insect control, and ecological relationships.

The Forest Products Laboratory of the United States Department of Agriculture is a new building, modern in respect to equipment. The staff offers courses in forestry, properties and technology of woods, and pathology of forest products. The number of graduate students is restricted.

The Chair of Game Management is attached to the Department of Agricultural economy but offers graduate work toward higher degrees. Of recent origin, it has accumulated data in biometry for six research areas since 1929. Research in life history and ecology of Wisconsin mammals and birds leads to development of conservation technique.



*Biology Building from the South
(showing animal houses, greenhouses, and lecture-hall wing)*

The Department of Genetics is housed in the Genetic Building and additional facilities include a Genetics Barn for quartering laboratory animals and a greenhouse. Close association with the Botany Department allows the development of cytogenetic studies and similar associations with the Agricultural Experiment Station to make possible studies on large scale. Active research lines are problems of heredity and sex endocrinology, inheritance in alfalfa and sweet clover, cytogenetics of maize, inheritance problems in connection with contagious abortion of cattle, and physiological activity of the gene. Course offered cover the fields of genetics in animals and plants and biometrical methods.

The facilities of the Department of Horticulture include suitably equipped laboratories, greenhouses, orchards, and field plots. Investigations, now underway, are effect of scion on stock in apple propagation, methods of propagation of decorative plants, photoperiodism and nutrition as influencing fruit setting. Courses in landscape gardening and pomology are offered.

The School of Medicine, in conjunction with the State Laboratory of Hygiene, State Board of Health, and the Board of Health of Milwaukee offer courses in epidemiology, public health, and practical hygiene.

The Department of Mathematics is included in the Biology Division due to the increasing need of adequate preparation in biometry, analyses of variance, and laws of probability.

While clinical course work is not handled in the Biology Division the Department of Medicine offers facilities at their headquarters in the buildings adjoining the Wisconsin General Hospital for the use of a limited number of non-medical students. Their studies generally are an application of the methods of the basic sciences to clinical medicine.

The Department of Pathology and Medical Bacteriology, in cooperation with other Departments of the Medical School, most of which are located in the Memorial Institute building, offers research facilities along pathological and immunological lines. Courses are offered in pathology, medical bacteriology and immunology.

The Department of Pharmacology and Toxicology has special facilities for the study of chemotherapy, drug addiction, and neuro-syphilis and other mental conditions, the chief emphasis being on development of methods of treatment.

The Department of Physiological Chemistry has facilities for studying autolysis, metabolism, chemistry of blood and of diabetes. Advanced courses in chemical physiology are offered.

The Department of Physiology has adequate laboratory equipment for courses in advanced human, animal and general physiology and for continued research work of graduate students along the lines in which they are interested. The effect of anaesthetics on heart action, the action of the heart, and circulation are active lines of research.



Agricultural College Campus from the East

The Department of Plant Pathology is located in the Agronomy and Horticulture Buildings. It has general and research laboratories, a pathologium, greenhouses, chambers where air and soil temperatures and humidity and light are controlled, plots for experimental field work, and

a collection of disease specimens. Courses are offered in disease of field, vegetable, and orchard crops, fungicides, and methods of phytopathological investigation. Lines of investigation are: head and seedling blight of cereals; fire blight, crown gall, and scab of apples; bean blight and mosaic; and diseases of onion, potato, and cabbage. Disease resistance and epidemiology are stressed.

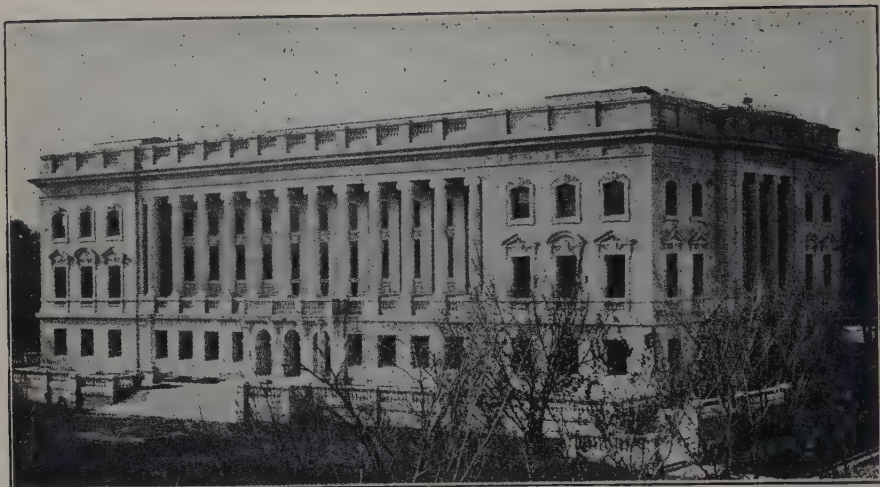
The Department of Poultry Husbandry is located in a building well equipped with incubators, brooders, and for laying stock. Its stock consists of numerous varieties of the domestic fowls. Courses in poultry management and judging are offered. The staff is conducting experiments on inbreeding of chickens, special phases of nutrition, and the effect of light.

The Department of Radiology and Physical Therapy offers courses in the principles of irradiation and therapeutic methods. Equipment for X-ray examination, superficial and deep X-ray treatments plus an emanation chamber with one half gram of radiation and apparatus for therapeutic methods makes possible graduate research in these lines.

The Department of Soils is located in a building designed for research and instructional work in soils. There are separate laboratories for the study of the chemistry of soils, greenhouses, and field plots at Madison and throughout the state. Courses are offered in soil management, analysis, physics, types, and treatment. Problems under investigation are soil acidity and its effects, mineralogical composition of the soil colloids, and phosphate and potash availability.

The Department of Veterinary Science has excellent facilities for research in animal diseases, particularly Bang's disease, mastitis, coccidiosis, and diarrhea. A list of courses includes parasitology, diseases of livestock and of poultry, and infection and immunity.

The Department of Zoology is located in the Biology Building. The department is equipped with a vivarium, indoor pool and aquarium, a photographic room, an animal operating room, biochemical laboratory, constant temperature chambers, and work shop and chemical rooms. The department has at its disposal a lake laboratory on the shore of Lake Mendota and other equipment of the Wisconsin Geological and Natural History Survey. Because of proximity to lakes there is opportunity and studies in aquatic biology, particularly embryology of various water forms. There are adequate facilities for research studies in all zoology fields including entomology and limnology. Problems under active investigation are those dealing with the relation of heredity to immunology and endocrinology, physiology of sex and sex hormones, limnology of



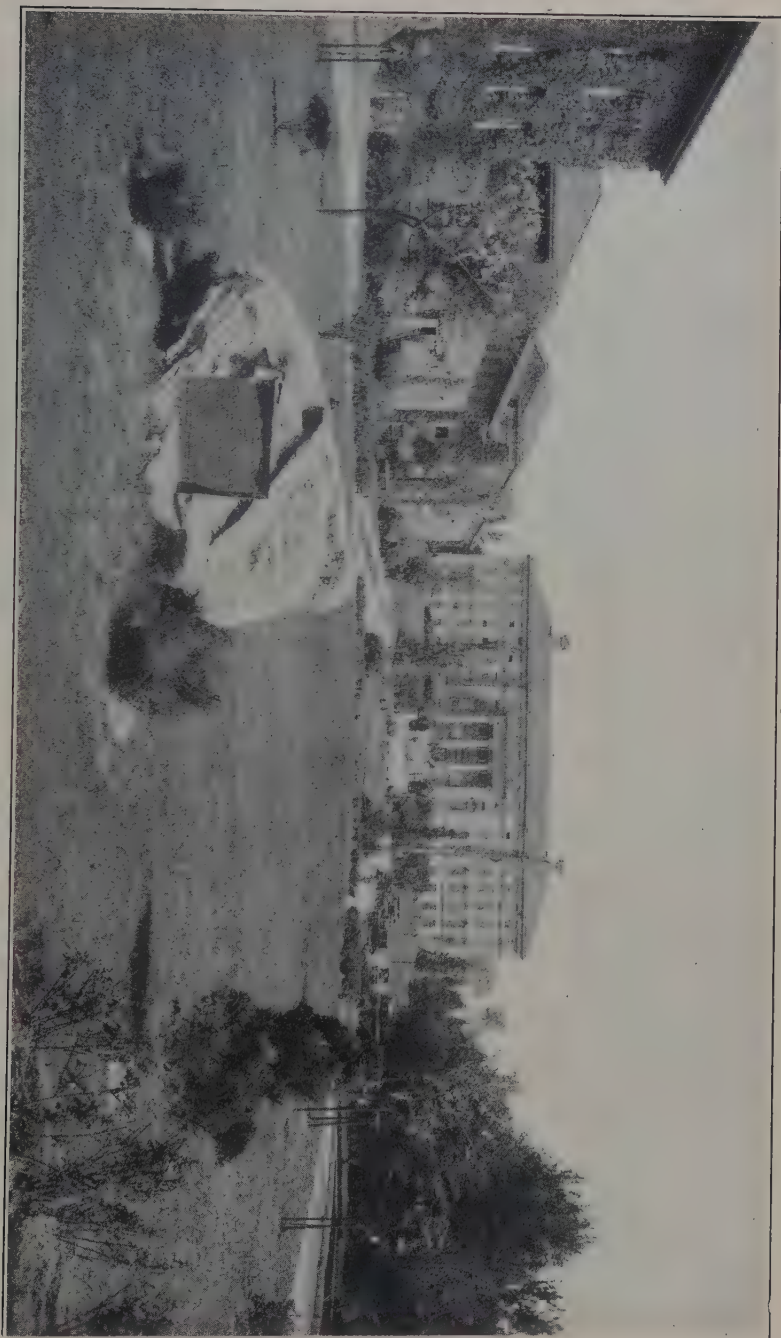
The Wisconsin Memorial Library

Wisconsin lakes, life history and habit of birds, embryology, and internal anatomy of insects, parasitology, protozoology, and cytology of the ciliates. In addition to elementary courses offered are vertebrate and invertebrate zoology, comparative anatomy, embryology, heredity and eugenics, organic evolution, protozoology, entomology, parasitology, anatomy, and micro-technique, endocrinology, limnology and plankton organisms, field zoology, and special courses in the anatomy and physiology of the cell, the roll of the cell in the development and inheritance, and cytology.

The library facilities at the University of Wisconsin are excellent. In many instances there are, for the convenience of the workers, branch departmental libraries which will include most of the publications dealing with the department's particular field. Associated with the University library is that of the Wisconsin Academy of Arts and Sciences which annually receives the publications of about 800 learned societies.

The Trout Lake Laboratories of the Wisconsin Geological and Natural History Survey have been treated in the March-May issue of the *Biologist*.

One of the most recent research areas obtained with money donated from several private sources and at least one University fund is the University Arboretum. In a few years the Arboretum has grown from the original lakeshore tract until it includes most of the land immediately adjoining Lake Wingra and controls those not owned outright. The tract now contains a variety of terrene and, when present plans are com-



College of Agriculture Campus from the South

pleted, will be covered by the main ecological associations of Wisconsin. To date tamarack, pine, spruce, Arborvitae, and birch associations have been started. Nurseries and propagating areas, experimental food patches for upland game, and ponds for waterfowl and aquatic plants are nearing completion. The purpose of the Arboretum is to preserve the natural Wisconsin associations and to provide an outdoor laboratory for students of Botany, Entomology, Soils, Limnology, Landscape Design, and Game Management. The project is administered by a University committee.

In summary, the Division of Biology of the University of Wisconsin offers, because of willingness to cooperate as shown by interdepartmental programs and because of organizations such as the School of Medicine, the Wisconsin Agricultural Experiment Station, the Forest Products Laboratory, and the Arboretum, unusual opportunities and combinations in graduate study and research.

Zeta Chapter's Honorary Members

C. E. ALLEN*

Professor Charles E. Allen has been associated with the University for more than thirty-five years. Prior to receiving his doctorate at Wisconsin, he worked with the botanist Strasburger. A champion of pure botanical research; one of the most eminent cytologists; a man of profound interests and cosmopolitan scientific relations; yet he is always accessible to the research student. He is affable, patient, perspicacious—all in the superlative.

L. P. COONEN

E. A. BIRGE*

(See the introductory article to this section.)

R. A. BRINK

Plant geneticist interested in chromosomal translocations in corn. Born in Ontario, educated there and graduated from the University of Toronto. Did his graduate work at the University of Illinois and at Harvard, receiving doctorate there in 1923. Divided a year of European study in 1925 between Bauer at Berlin, and Ling at Birmingham. Interested in the improvement of economic corn plants, he organized a plant improvement program of far-reaching possibilities and results. At present heads the work on hybrid corn breeding, and on alfalfa improvement. Treasurer of the American Society of Naturalists, he has produced a

number of graduate students who are making the application of plant breeding methods to commercial seed breeding their life work.

H. H. LAIDLAW

G. S. BRYAN

Many students have been imbued with a genuine interest in Botany with its problems and complexities through the stimulating lectures of Professor G. S. Bryan. The fiery discourses emanating from this capable botanist make him as popular with his six hundred freshmen students as with his advanced morphologists. Professor Bryan is an important contributor to the success of Wisconsin's Botany Department.

L. P. COONEN



G. S. BRYAN

L. J. COLE*

Dr. L. J. Cole, genial chairman of the department of Genetics, began his scientific career as an authority on Pycnogonidia. Followed a purely zoological career until he was starred in American Men of Science in 1910 as an outstanding member of the profession. Switched to genetics about 1906, although at that time it was known as experimental breeding. A native of Allegany, N. Y., he grew up in Michigan, devoting his boyhood spare time to collecting plants, birds and molluscs for the Kent Institute, Grand Rapids. Undergraduate student at Michigan State, and the University of Michigan, (at which he was a fellow student of Alexander Ruthven and Raymond Pearl), he did his graduate work at Michigan, and Harvard, receiving his Ph.D. in 1906. Has



L. J. COLE

travelled extensively, both for science and pleasure. As a college sophomore he was on the Harriman Alaska Expedition in 1899. Aided Marks in the foundation of Bermuda Biological Station. Collected in Yucatan in 1904, at Tortugas in 1906. Studied European animal breeding and genetics first hand in 1911. Very active in scientific organizations, his greatest contribution to genetics is the number of men he has trained for experimental careers.

H. H. LAIDLAW

B. M. DUGGAR*

Professor B. M. Duggar, plant physiologist and phytopathologist, came to the University in 1927. At that time he was already a leader in his field; he has been reassured that status many times through his researches and publications, culminating in his recent compendium on radiology. That his students and colleagues the world over hold him in high esteem is reflected in the conglomerate of research students and correspondents he has.

L. P. COONEN

E. B. FRED

Dean E. B. Fred is both dean of the Wisconsin graduate school and professor of agricultural bacteriology. Especially interested in biological nitrogen fixation, his monograph on the root nodule bacteria is the most important piece of literature in the field. Acted as president of the Society of American Bacteriologists in 1932. Though busy with the administrative duties of the graduate school, Dean Fred still maintains active contact with research, where his great energy and his fund of knowledge are exemplary to the graduate student,



E. B. FRED

while his ever ready wit makes him every student's friend.

H. BIRD

E. M. GILBERT

Professor E. M. Gilbert, chairman of the Department of Botany, although the hub of all executive departmental duties and the guide of research mycologists, is still an interested and popular lecturer, as is evidenced by the enrollment in his courses. A native of Wisconsin, he was trained in her schools exclusively and became a member of the University staff in 1910. His large circle of friends and acquaintances vouches for his personality and for his interest in people.

L. P. COONEN

M. F. GUYER*

Few colleges and universities in English speaking countries offer courses in zoology without the aid of at least one of Professor M. F. Guyer's text books. The chairmanship of the department does not prevent his maintaining prominence in such diversified zoological fields as cytology, physiology, heredity, and microscopy, nor do his many interests and duties adumbrate his sense of humor and good fellowship in daily student contacts.

L. P. COONEN

E. B. HART*

Came to Wisconsin in 1906 as head of the Agricultural Chemistry Department and still holds that position. Refers to many well-known men in various branches of biochemistry as "my boys". Research has touched every phase of animal nutrition, with particular emphasis on the role of mineral elements. Teaches courses in Dairy Chemistry and Animal Nutrition, each of which is referred to by many people as "the best course I ever took". Thinks biochemistry is the most important thing in the world, but hates to miss a football or basketball game.

H. BIRD



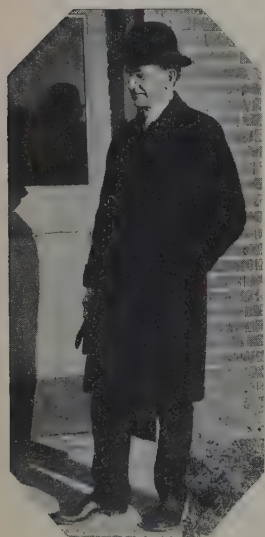
E. B. HART

E. G. HASTINGS

Professor E. G. Hastings serves as the head of Wisconsin's famous agricultural bacteriology department. He has been an active force in Wisconsin's great dairy industry, and served as president of the American Society of Bacteriologists in 1923. Professor Hastings has witnessed the greater part of the development of the infant science of bacteriology and possesses the ability to transmit his keen analysis of its problems to his students in dairy bacteriology. Always mild and unassuming, this man known affectionately in the department as "The Chief", is respected for his charming personality and a knowledge that speaks for itself.

H. BIRD

L. R. JONES*



L. R. JONES

Lewis Ralph Jones was born on a farm near Brandon, Wisconsin in 1864, and spent his boyhood there. He attended Ripon College and the University of Michigan, taught sciences for a year and a half at Mt. Morris Academy in northern Illinois, and then accepted a position as botanist at the University of Vermont in 1887. Here he made his historic contribution toward the control of potato blight, and almost equally far-reaching findings on the soft rot of carrots. He became renowned as a teacher, and an ever-increasing stream of graduate students went to Vermont. In 1910 Jones left Vermont to found the department of plant pathology in the College of Agriculture of the University of Wisconsin. He is most famous for his triumph over cabbage yellows in Wisconsin, but he has done other work that is just as important. There is, for instance, his study on the effects of environment upon plant disease. His findings on the nature of disease resistance have given great impetus during the past two decades to use of the resistance principle in foiling plant disease. Dr. Jones has now given up teaching and research for advisory and committee work, for which his long experience and far-seeing vision eminently qualify him. He has for several years been a member of President Roosevelt's Science Advisory Board; he is president of the Tropical Research Foundation at Washington, D. C., a trustee of the Boyce-Thompson Institute for Plant Research at Yonkers, N. Y., and a member

of numerous scientific societies both at home and abroad. "Jones-trained men" are located in 41 states of the Union, and in 10 foreign countries on every continent in the world. Hundreds of his former pupils now have responsible state and federal positions, and scores of them have become famous scientists and teachers in their own right, passing on the torch of Jones inspiration to an ever broadening circle of the younger generation.

S. B. LOCKE

CHANCEY JUDAY*



DRS. E. A. BIRGE AND CHANCEY JUDAY

Dr. Chancey Juday, Professor of Limnology at the University of Wisconsin, has for many years been actively engaged in fundamental problems pertaining to aquatic biology. His contributions in field are both practical and academic in scope, ranging from intensive research on the chemistry of inland waters to studies on the productivity of lakes in relation to fish growth. Outstanding among his accomplishments is the development of the Trout Lake Laboratory, an important center of limnological research in this country. His reputation as an outstanding student of aquatic problems has attracted investigators from afar and has added prestige to the University.

C. L. SCHOEMER

EDWARD KREMERS*

One of Wisconsin's native sons, Dr. Kremers studied in the Philadelphia College of Pharmacy back in 1884-85, then at Wisconsin in

1886-88, and finally at Göttingen where he took his Ph.D. in 1890. He has been at Wisconsin ever since, most of the time in charge of pharmaceutical education. His graduate students have followed their brilliant major professor in their work on the volatile oils, phytochemical studies on the Monardas, and the classification of the carbon compounds.

A. M. K.

W. J. MEEK*

Professor of Physiology since 1910; Associate Dean of the Medical School since 1920. Has many research accomplishments to his credit, chiefly in the study of the physiology of the heart and circulation. Finds time, in spite of research and administrative duties, to teach physiology to first year medics. Has remarkable succession in convincing them of the importance of basic sciences in medicine. Recent research includes fundamentally important studies on the effect of anaesthetics on the heart.

H. BIRD

EMIL TRUOG

Another of Wisconsin's native sons, Emil Truog has been one of the state's pioneer research workers in soils problems, of which Wisconsin has a plenty. He was educated at the University, where he has successively risen to the status of professor of soils. More interested in the physiological aspect of soils he has been influential in his research on fertilizers, and the methods of using them, soil colloids, mineral elements in the soil and various methods of soil analysis.

A. M. K.

GEORGE WAGNER

During the past thirty-five years Professor George Wagner has assumed a large share of the responsibilities in the Zoology Department. As a teacher and as an authority on Wisconsin fauna, he maintains an enviable reputation and his long activities in the field of bird-banding have gained him widespread recognition. The University library and the Wisconsin Academy of Arts, Letters, and Sciences both owe him a debt of gratitude; the former because of his foresight and success in bringing many foreign journals to its shelves; the latter for his efforts resulting in its international acquaintance.

L. P. COONEN

THE NATIONAL CHANCELLOR SPEAKS:

TO THE CHAPTERS

IN a few weeks we assemble in Indianapolis to talk over the affairs of Phi Sigma. It is unfortunate that all of us cannot be there together. Conventions are intended to provide a forum for the discussion of the national problems of the society. At a convention the delegate from the smallest chapter has just as much power and is just as important as the delegate from the largest and most powerful chapter. In your chapter one of the most important advantages gained by each individual is the initiation of life-long friendships with others of his own kind. At a convention the most important advantage gained by the chapter is more intimate contact with other chapters.

Your delegate should come to Indianapolis prepared to sell your chapter to the convention. Load him with propaganda. If you have any reason for existing as a chapter of Phi Sigma prepare your delegate to tell the convention what it is. If you are a graduate chapter and think that graduate chapters are more important than others instruct your delegate to attempt to sell us the idea. If you are an undergraduate chapter prime your delegate to defend your rights to be an undergraduate chapter: have him ready with proof that research, for instance, can be done by an undergraduate. If you have graduate and undergraduate students in your chapter prepare your delegate to tell the convention the advantages of bringing young and older students together "to promote research".

Conventions always tamper with the Constitution. Your delegate must come fully prepared to resist any and all amendments to that document. More societies have passed to the great beyond by tampering with constitutions than by any other means. Resist all amendments. Be prepared to yield, however, to the majority opinion if and when an amendment is proposed which clarifies the fundamental policy of the society or which represents genuine progress in the development of fundamental policy.

At this convention we are all on the lookout for a new Chancellor. Your delegate will not only help to elect him but he will be called upon to help select him. Our experience in the past has been that chancellors are hard to find. The present occupant of the office was selected because

he happened to be chairman of the Chicago Convention in the absence of Dr. Sears. The room was hot and stuffy and mealtime was close at hand. He went out to get a breath of air and came back Chancellor. At the St. Louis Convention he was revealed as an usurper to the throne, a chancellor without a chapter to his name. It has been much easier for him to act in his capacity as chancellor, however, without a chapter to his name. Never for a moment has it been necessary for him to consider the local effect of a national ruling from the standpoint of his own chapter (Beta) because he has never been associated with nor cognizant of the policy of that chapter, nor from the standpoint of a chapter at his own institution because there is none. Chancellors with chapters on their hands are sorely handicapped.

A new treasurer is to be elected or the man whom we have always considered our permanent treasurer is to be reelected. Mr. Stewart was one of the founders of the national organization. He has given of his time for twenty years that Phi Sigma should be a bigger, better organization. At the St. Louis Convention he was appointed chairman of a committee "to audit his own books". Such is the man, Stewart. Some convention will demand a public audit of Stewart's books, and the auditor will find himself studying a very homely document, a detailed account of every dollar of Phi Sigma's money since 1917, carefully guarded and carefully spent. These dollars have been in honest, experienced hands all these years, and no one knows how many other dollars of his own money Stewart has spent in order that he, personally, might be of service to the fraternity. Phi Sigma cannot afford to lose him.

One last appeal before you send your delegate to Indianapolis. Train him to think of national affairs in a national way. Instruct him to vote for those national officers who will interest themselves in Phi Sigma, not for those who will simply feel honored by being elected to the National Council, nor for those who impress him as great biologists. Most great biologists have little time for work of this sort. Let the great names appear among our honorary members or among our honorary presidents but let us have workers on our National Council.

So may I thank all of you for your sincere cooperation with me during the past eight years and assure you of my continued interest in the development of a more useful and influential Phi Sigma in the years to come.

PAUL A. WARREN, *National Chancellor.*

Tufts College, Medford, Mass.

THE EIGHTH NATIONAL CONVENTION

THERE is little to add to the announcement which appeared in Volume XIX Number 1, of this year's *Biologist*. It is too early (Nov. 15, as this is written) to give any final details, and other matters which might be mentioned, must be attended to before this number of the *Biologist* can reach you. Any further information concerning the Convention will be sent by letter to the individual delegates.

One change has been made, which is of importance. Our *meetings* will be held in the Lincoln Hotel, *not* at the Warren Hotel. We are still assigned to the Warren for *rooms* however. Briefly, the Tuesday and Wednesday morning and Wednesday afternoon sessions will be held in Parlor L, and the Tuesday afternoon session in Rooms 1309-1311, all in the Lincoln Hotel. This will cause little inconvenience, I believe, and there are some advantages gained by the change.

I have one request—please write to me as *early as possible* concerning any matters relative to the convention about which there are questions. If it becomes necessary to communicate at a late date, please give your full address as mail will be slower as Christmas approaches, and a school address may not be sufficient, particularly, if the holidays have begun at your institution.

Finally do not fail to have Mr. Stewart approve your chapters' financial standing at as early a date as possible.

A. I. ORTENBURGER,
National Secretary.

“A community of men presents some of the attributes of matter,” says Salvador De Madariaga. “A crowd flows, can be diluted or concentrated, can undergo vibrating movements; a crowd is in fact something akin to a liquid.” It can be chilled. It can be changed into a turbulent torrent. It can be heated until it boils itself away in emotional froth.

WHO ARE THE NATIONAL COUNCIL

By ANSELM M. KEEFE



Stewart, Hatch, Warren, Ortenburger, Keefe

THIS picture of the national council was taken on the tower roof of the Denver University's beautiful library building on the occasion of an interim session March 17, 1934.

In point of service Dr. Melvin H. Hatch is the most recent member of the council. At the 1933 Chicago convention he was elected vice chancellor to fill Dr. Warren's place. In the 1935 convention at St. Louis he was reelected for a full four-year term. A former member of Michigan's Beta he took his Ph.D. there in 1925. He has taught at Syracuse, James Milikan, Michigan and Minnesota. Now a member of the faculty at the University of Washington, his main biological interest is entomology.

Dr. Paul A. Warren came into the national council by his election as vice chancellor at the 1930 convention in Cleveland, Ohio. In 1933 he was elected to succeed Dr. Paul B. Sears as national chancellor. An alumnus of Beta, he took his Ph.D. at Michigan in 1922. Taught at the Medical College of Virginia and at William and Mary. He is at present

a member of the faculty of Tufts college, Medford, Mass., and a botanist by profession.

Dr. Arthur I. Ortenburger entered the council in 1928 as editor of the *Biologist*. At the 1928 convention in New York he became national secretary as well, succeeding Dr. C. I. Reed of the Medical school of the University of Illinois. In 1930 Dr. Keefe took over the burden of the editorial office and Dr. Ortenburger retained the secretaryship, an office to which he was subsequently reelected at the St. Louis convention in 1935. He is a former member of Beta, took his doctorate at Michigan in 1925. Dr. Ortenburger is professor of Zoology at the University of Oklahoma with which he has been associated since 1924. His special field is herpetology.

Second eldest among the members of the national council is Dr. Anselm M. Keefe who came into the council by election to the vice-presidency at the Philadelphia convention in 1926. At the close of his term in 1930 he was appointed editor by the national council at the Cleveland meeting. He is an alumnus of Zeta chapter, took his doctorate at Wisconsin in 1926. He is the dean of St. Norbert college at West DePere, Wisconsin, and heads the department of biology.

Holding perhaps the longest continuous record in the service of any fraternity, honorary, professional or social in American collegiate education is Erwine Hall Stewart. He was elected national secretary-treasurer in June 1917 and has been continued in that office for twenty years. During the bank holiday and the freezeup of organization funds that followed, he carried Phi Sigma through on his own personal finances. He is a former member of Denver's Epsilon chapter, and is now engaged in ranching at Mesa, Colorado.

Probably not more than two in ten (we are in an optimistic mood today) would be able to set down in writing an adequate statement of their life purpose, and only a comparatively small number conduct their affairs methodically. Two hundred years ago William Penn wrote: "Method goes far to prevent trouble in business; for it makes the task easy, hinders confusion, saves abundance of time and instructs those (concerned) on what to do and what to hope."

A FORMER NATIONAL SECRETARY SPEAKS:

WHEN I resigned as national secretary of Phi Sigma nine years ago I decided to stay out of the affairs of the organization so far as possible. This decision was based on the belief that since I was one of the charter members of the charter chapter and had served as a national officer during most of the thirteen years Phi Sigma had existed, I might intrude too much into normal progress and evolution.

However, the Zeta letter in the issue of *The Biologist* for March-May 1937 prompts me to make a few comments. I have always insisted, in spite of my own intimate relation with the conception, birth and adolescence of Phi Sigma, that if the interests of Science are ever best served by the death of Phi Sigma, I would be willing to deal the death blow. And that still holds. My re-entry into the field at this time is not prompted by any sentimental attachment to the puny youngster I helped to "birth" twenty-two years ago, for I do not believe the time has come to Oslerize the adult, but rather to induct into the next stage of development now long past due.

As I read Mr. Atwood's letter certain statements seemed very familiar to me. For a moment I was puzzled, but presently I realized that the letter might have been written at any one of several periods—the earliest, as far back as 1916; the second, in the post war period of resuscitation; the third, at the 1924 convention; and the last, at any time during the period of expansion that followed the complete revision of the Constitution at that first convention, up to 1928.

Let me hasten to assure the reader that I do not, however, regard Mr. Atwood's letter lightly and I commend him for his frankness and for the very evident thoughtfulness of his presentation.

But it is a little depressing to realize that the Society has not *yet* grown beyond consideration of certain questions that belong to the period of adolescence. Nearly every question he has raised was discussed quite as vigorously and earnestly by various persons in the early days and predictions of dire calamity were made. To make myself clear, I must, at the risk of becoming unduly reminiscent, try to trace briefly some of the epochal stages of development along the way.

Of the twelve charter members of Alpha Chapter only one held a faculty position of minor grade, one was a candidate for the Doctorate,

three were candidates for Master's Degrees, and the rest were juniors and seniors whose major interest was in scientific research. The venture was undertaken more or less in the spirit of many student activities, without faculty instigation, without any very clear objectives of importance—just a group of men with similar interests who wanted to associate, not too seriously, for mutual benefit.

It was only a short time until the idea of an honor society emerged and with the gusto of innocence was put into tangible form. Almost the first fruition was the careful designing of an honor key which is essentially the same as that still in use. If I remember correctly, the first constitution was not framed until sometime later, in fact, not until after the first group of new members was initiated.

Incidentally, only five of the original twelve subsequently followed scientific careers, although all but two published independent research work within a year. Two had published before that time.

Faculty interest was aroused very promptly upon the appearance of the new keys so proudly displayed. Professors began to ask, "What are you going to do"? When it came time to pay for the new keys, more than one member asked, "Why did I buy this thing anyway?" New members began to ask what was done with the rest of the initiation fee. We suddenly realized that we had created something that bade fair to be a useless toy. We promptly went into a huddle and the gist of deliberation was, "We must find a use for Phi Sigma now that we have it".

After the first burst of vanity was sated, the idea of an honor society began to pall. None of us were fundamentally impressed with that aspect of the situation. We really did not care much about being honored. Six of us had already won Sigma Xi and were impressed by the large percentage of dead timber, people who, after winning the honor, had never done anything to uphold it, but had been content to bask in past glory.

"Why not make Phi Sigma an active, working organization?"—we promptly set out on that line and gave a program ourselves in an open meeting. It was a great success and faculty members were loud in their approbation. How different might have been the subsequent history if we had then mustered the courage, or the foresight, or whatever else might be needed to cut loose from all of the old trappings and start anew as a Junior Biological Society! But just as the early automobile manufacturers continued to put a dashboard on their horseless carriages, so we retained the key and the empty name of an honorary society. We really had begun to have a larger vision, however, and during that first year we put on regular monthly programs with a minimum of dependence

upon faculty participation. We held one meeting which was addressed by several faculty members. New members literally flocked in and every one had to contribute to the programs in some constructive fashion. Some of the researches reported were elementary, but, nevertheless, represented a serious effort.

With this initial success we began to have thoughts of other worlds to conquer. The first president, Dr. Eric Cogan, who subsequently returned to his home in South Africa, appointed a committee to investigate the possibilities of nationalization. The response was encouraging. That there was need for such an organization was made apparent by the fact that we found nine other local organizations of similar purpose already in existence, two of which had functioned for as much as five years.

About this time I succeeded to the office of president, and one of my first duties was to authorize the installation, by proxy, of Beta Chapter. We saved the travelling expenses of an installing officer that way. In fact, if I recall correctly, the first chapter installed by an officer of the Society was Kappa. I was then national secretary and a member of the faculty at Kansas, so there was still no expense account. Delta and Theta were installed by members of Alpha, who were then members of the local faculties.

One of the first questions asked by interested parties in the various institutions subject to the early canvass was in essence the first that Mr. Atwood raises, and usually took some such form as, "Do you intend to put chapters into both small and large schools or will the organization be confined to the large universities?" Our general attitude was expressed that any school in which there was sufficient interest to maintain a local society for a year or more should have a chapter, and that activities should be adapted to local needs and conditions; that there was no question of parity of rank, nor any other consideration than the democracy of scientific fellowship wherever found. There was never any question of granting recognition of scientific attainment of equal rank to an interested biology student in the small college and to the Ph.D. candidate with published work, in a large university.

In our minds the most desirable thing was to get students who were interested in the biological sciences to associate themselves with others of similar bent, not only in their own institutions but in others. From that point of view, the student from the small college might be encouraged and stimulated by some sort of contact, even the most tenuous with the embryonic neophyte in the great research laboratories and the latter

would not be harmed. I still challenge anyone to show where any injury has resulted except to personal pride.

With that pronouncement by the early officers backed up by the membership of Alpha Chapter, which, by the way, was located in what was even then no inconsiderable institution, there was a storm of protest and prediction of failure and all sorts of disaster. A seriously interested group in one large institution promptly dropped all negotiations. However, Phi Sigma has grown and progressed for twenty-two years without any of those things happening.

I have been a student in a college with a student body of only four hundred, in two great state universities, and one of the greatest of our endowed universities. I have also served on the faculties of both large and small schools. While serving as president and secretary respectively of Phi Sigma for a total of eight years, I had occasion to give very serious and, I hope and believe, unbiased consideration to this question. I have studied the nature of the activities of the chapters in both types of institutions. I have even taken pains to collect some cross section statistics on the subsequent careers of the members.

I can honestly say that I have yet to see any essential difference in the *quality of interest* displayed by the members of the chapters in the two types of schools. Also, I am convinced that there is quite as large a percentage of dead timber in one group as in the other. Still further, fully as large a percentage of the membership of the small school chapter follow productive scientific careers as from the large school chapters.

With all regard to the sincerity of the critics, I am convinced that this attitude is partly an extension of a similar type of controversy in the social fraternities. I well recall the supercilious attitude displayed by members of my own social fraternity toward members of sister chapters in smaller schools, despite the fact that the particular men displayed every quality required of members everywhere.

One should not lose sight of the fact that the fundamental idea of Phi Sigma from the time it became nationalized was to encourage and stimulate scientific interest. It was never intended that Phi Sigma should become a counterpart of the Nobel Committee to recognize accomplishment in research but only to encourage interest where inquiring interest has been displayed.

I grant that in our immaturity we did not do a very good job of expressing that idea in setting up the original organization. While I am proud of the original key I purchased, and still more of the jeweled key awarded to me by the New York Convention at the conclusion of my

term as National Secretary, I wish that we had abolished the key in 1916 along with all semblance of an honorary society, even to the Greek name. There can be small excuse for expending the larger part of the total revenue of the national organization for a bit of jewelry and an ornate certificate of membership. The money might better be expended in establishing scholarships, and research grants.

Had the state of my health and the will of the Society permitted me to continue in a national office, one of my objectives would have been the formation of a Junior branch of the A. A. A. S., where immature students could present their own modest efforts and accomplishments and discuss them together. In short, the enlargement of the scientific sessions of Phi Sigma to really national proportions. The officers of the A. A. A. S. were at one time very much interested in this possibility.

At the 1933 convention I was appointed on a committee which was to try to secure a grant of money to Phi Sigma of sufficient magnitude to permit of making grants for research purposes to very immature students who would ordinarily not be in position to command such resources from any existing agency. The idea was commended but every source that was approached definitely took the stand that the organization was too limited in scope and *did not extend sufficiently into the field of the small college!*

I am not at all certain that *The Biologist* is serving its function to maximum possibilities. Editorially I have no criticism to offer. It is a question of an officially established policy. I have not been associated actively enough with the Society in recent years to justify any suggestion on that point.

As to the point raised by Mr. Atwood regarding national officers, I may say that the most dismal failures among the national officers in the past have been men associated with active chapters. The most important thing is to secure officers who will *work*. With that qualification it makes little difference whether they are located in a chapter or not. I do not imply that the failures cited above were failures because they were so located, but merely that such relationship will *not* insure satisfactory service.

Past experience has several times proven that the transaction of business by mail is not satisfactory. The only way the business of the Society can be successfully accomplished is by the convention method. And to speak of a discussion convention where no formal action is taken is utterly asinine.

The idea of a referendum on certain specified points is good and should be adopted within limits. Instruction of delegates is a dangerous

procedure if carried too far. Discussion on the floor may bring out points that would change the whole picture and modify the attitude of the instructing group if made known. The delegate should always be free to swing in on such a question.

Despite the growing pains and the illnesses of childhood, I am proud of my foster child now come into majority. I believe the general influence of the Society has done enough good to justify past existence even in the imperfect state and that it may still be an important constructive influence. However, changes designed to lead to improvement should not be made in total disregard of the past history and experiences.

Lastly, financial considerations should not enter too largely into consideration of changes. I earned, by my own efforts, every penny expended in my education and so can sympathize fully with the student who has to do likewise. However, I know that I and nearly every other student in similar circumstances spent, quite cheerfully, far more money for utterly useless purposes than most members of Phi Sigma are ever called upon to expend on the Society. I do agree, however, that the income of the Society may be spent more economically.

C. I. REED, Medical School
University of Illinois, Chicago, Ill.

THE SECURITY OF SLAVERY

A dictator can take control of a country only when its citizens have surrendered to their own feeling of inferiority. When overwhelmed by their sense of hopelessness, due to their inability to solve their problems and achieve satisfaction and security, they reach out blindly for some strong person to give them orders. They surrender to their latent desire to be ruled.

Then, when their courage returns, or when they feel that their personal privileges and rights are being taken from them too ruthlessly, they turn with the same burning passion to destroy the dictatorship they created.

People swing back and forth between two impulses or wishes—the wish to be ruled and the wish to be free. Hungry, harassed, insecure people, their hearts filled with unrest, let their emotions sweep them away from the freedom of interdependent individualism. They become dependent and then learn too late what a high price they have paid for the security of slavery.

EDITORIALS

The Badger Biologist

BRILLIANT in the cardinal red of Wisconsin's great university this issue of the *Biologist* comes to you as an example of what each chapter can do for itself and for its school if it so desires.

But why begin with Wisconsin? Probably first of all because your editor is proud to admit that he holds his Ph.D. from Wisconsin, was an active member and for two years an officer in Zeta chapter. Secondly, it was much easier for him to make a personal trip to his graduate Alma Mater, meet the chapter officers, talk to the faculty members, search out the "cuts" from the university and alumni files and, in general, personally supervise the preparation of this model for possible imitation in succeeding issues by other chapters.

The University of Wisconsin has made a definite place for itself in the world of biological science. Not only has it given to the world more than one scientific standard-bearer, in a Muir, a Babcock and many another, but it still continues to produce or recognize genius as Zeta's list of honorary members aptly testifies. If this were all, it might be sufficient. However, there are four hundred and six graduate students in biology, divided over the various departments as follows: botany 43, pharmacy 10, physiology 9, psychology 18, zoology 50, and the various branches of agricultural research 276. From all of which it would seem obvious that Wisconsin not only has produced biologists of distinction, but is still aiming to do so.

This editorial would fail in its purpose if it were to forget the kindly and enthusiastic cooperation of the Zeta chapter members in the preparation of this issue. Particularly active in this regard were Dr. Lowell Noland, past national vice-president of Phi Sigma, and the chapter officers, president H. R. Bird, vice-president R. E. Duncan, recorder J. T. Wolf, corresponding secretary G. Worley, treasurer D. Frey, and editor L. P. Coonen. They made this colorful edition of the *Biologist* possible.

If other chapter officers will speedily follow their example we shall be assured of perhaps not bigger, but certainly better *Biologists*.

"Where are the other Nine?"

JUDGING by some of the chapter letters received in the not too recently remote past something ailed Phi Sigma. When the diagnoses were printed in the *Biologist* they aroused considerable discussion. Other diagnoses followed. These, too, are being published in this issue of the quarterly.

Taken, all in all, they are few in number, well considered and very obviously intended for the best interests of the society. To these chapters all members of Phi Sigma owe a debt of thanks. They have its future at heart, and are not afraid to speak out. Your editor is grateful to those other chapters who found nothing to criticize in the society and were frank enough to say so. They, too, have given thought to our aims and our needs.

But where are the rest? From many a chapter not a word has come either to the editor, or, on investigation, to the national secretary. Letter after letter from both our offices has gone unnoticed and unanswered. What is wrong? Are we due for some more dead and inactive chapters? Or have moribund chapters elected their most vocal politicoes to secretarial positions?

Really, it is enough to try the patience of that paragon of long-suffering, the biblical personage called Job. He, you may remember, was afflicted by sores and insects. Poor old Job had nothing on your present national secretary and your editor. Such chapter officers are worse than blisters. And they certainly get into one's hair.

And this Biologist?

JUDGING by the responses to the editor's postcards, letters, and his editorial in the last *Biologist*, the majority of the membership are pulling their punches, and are saving their thunder until the Indianapolis convention. Of course, there may be some who just plainly aren't interested. Some others just possibly are so satisfied that their silence may be taken for consent to all the changes that have been wrought in our magazine.

However that may be, the present preconvention issue of the *Biologist* represents another stage in our experimentation with the publication. Keeping the simplified format of the September issue, we have added a flock of illustrations. A whole section is devoted to one of the great universities which boasts of a Phi Sigma chapter.

What do you think of all this? If you see an exceedingly worried looking person running around the Indianapolis convention with a lantern, like the Greek philosopher looking for an honest man, rapidly draw your own conclusion that this is the editor of the *Biologist* looking for an opinion.

The Wash Line

IT is considered very bad form in polite society to air one's family troubles in public. Are we indecorous then, and just a bit juvenile, in opening the pages of the *Biologist* to the complaints of the membership? In other words, is it vulgar for us to wash our dirty linen in public? Well, that all depends on whether you regard constructive suggestions of the chapters as something unclean or not. There are some of us proletarian enough in our own nearness to the soil not to mind. At its very worst it's better for the doctor to tack a "Scarlet Fever" sign on the house than for the mortician to hang up his artificial flowers. There's always a chance for the living patient!

SOMETIMES THEY LOVE THEIR HOMES

A statesman who associates on terms of equality with the leaders of the world may be a Great Man in public, but at home, in the privacy of his family life, he probably dunks his toast. He may even make millions of his fellow citizens tremble when he frowns down from a balcony during a speech. But at home his wife orders him about and his children rumple his hair and disagree amiably with him or tell him where to head in. One thing to remember always is that all Great Men are also human beings. The official part of them is only part of the whole. Their private hopes and fears and loves and hates and failures and triumphs are much like those of average men who peddle fish, drive locomotives, minister to country congregations, sell hardware, teach school, hunt ducks, paint signs, or watch automatic machinery perform its miracles in some giant manufacturing plant. They have wives, children, parents, aunts and uncles, neighbors, dogs, cats, birds, furniture, trees, and all the things that go with living in a home.

CHAPTER NEWS LETTERS

Beta

President—Joseph P. Harris, Department of Zoology.

Vice-President—Hugh Clark, Department of Zoology.

Recording Secretary—Kathleen Hussey, Department of Zoology.

Corresponding Secretary—Roy E. Joyce, Department of Botany.

Treasurer—Robert Lindberg, Department of Bacteriology.

(All from the University of Michigan, Ann Arbor, Michigan)

In order to eliminate any danger of intellectual lethargy in the Chapter, Beta has continued to elevate its standards of eligibility and to expand its activities into the borderline fields of Biology. Members have been selected only after the most rigorous scrutiny of research ability and academic worth; speakers have been selected from a group in whom the spark of scientific curiosity is still aglow; discussions have been directed into fields of Biological investigation which are new, e.g., hereditary factors in cancer, led by Dr. Carl V. Weller, tissue immunity by Dr. Reuben Kahn, effects of civilization on animal populations by Dr. Henry Van der Schalie, and Genetic mutations in Bacteria by Dr. Kenneth Jones.

In order that such benefits may be derived by other chapters in the future, Phi Sigma must be extended into research centers at institutions where it does not now exist; in order to be attractive to such institutions the standards of the society must be raised; in order to accomplish this, Beta proposes that new chapters be accepted only in institutions where graduate work is offered in the Biological Sciences; and further, it stands in defense of the constitution in its requirement of "*special ability for research work*" in its members.

Since we believe that the sole useful purpose of the *Biologist* is unification of the society, we further propose that its expenses be reduced to whatever minimum is consonant with this objective, as, for example, a mimeographed or duplicated circular for National Business. If the *Biologist* can continue in its present form we should be delighted. We suggest that Dr. Keefe bring to the National Convention actual figures regarding present expenses of the *Biologist*, and proposed reductions in expenses, in the way of cheaper paper, cheaper format, and letters of promise or contracts from prospective advertisers.

In view of the fact that the National Office exacts two dollars a year

in dues, we should like a published statement of expenditures and receipts of National monies, in the *Biologist*, in whatever form it is to take.

Regarding the expenses of delegates, we must disagree with Mu chapter, which suggests that delegates be supported by the individual chapters. Because of the fact that the National Conventions are held in conjunction with A. A. A. S. meetings which attempt to be centrally located, we believe, firstly, that over a period of ten years the expenses for each chapter would not be appreciably changed one way or the other by assumption of the expense by each chapter individually, and secondly that it is the duty of the chapters more centrally located to assist those which are more distant, in the interest of the society as a National Organization.

We regret that we cannot submit nominations of men for National Chancellor and National Treasurer at this time. We agree with Zeta, however, in its suggestion for representation of as many chapters as possible in the national offices and their association with active chapters.

Our delegate to the National Convention will be Wayne Whitaker of the Department of Zoology, who, last year, was our President; the fact that he was selected without a murmur of dissent indicates that he is sincerely interested in the society and is thoroughly conversant with its problems.

The list of initiates for the spring of 1937 follows:

William C. Beckman	Norman Loofbourrow
Robert S. Benton	Harry E. Malewitz
Dr. Pierce Brodkorb (Faculty)	Margaret E. Nalder
Marjorie A. Darken	Effie Pelto
James J. Friauf	William C. Ryder
Muriel Carson Gerkins	David B. Stout
Oscar A. Johnson	Harold Westlake
Roy E. Joyce	John A. Wilson

HUGH CLARK, *Vice-President*.

Zeta

President—H. R. Bird, 117 Ag. Chem. Bldg., Univ. of Wisconsin.

Vice-President—R. E. Duncan, 402 Biology Bldg., Univ. of Wisconsin.

Corresponding Secretary—Gordon Worley, Memorial Institutes Bldg., Univ. of Wisconsin.

Recording Secretary—F. T. Wolf, 302 Biology Bldg., Univ. of Wisconsin, Madison, Wisconsin.

Treasurer—D. G. Frey, 355 Biology Bldg., Univ. of Wis., Madison, Wisconsin.

In reply to your letter of May 5 and the editorial "The Convention", which appeared in *The Biologist* for March-May 1937, p. 190, calling for

convention agenda, Zeta Chapter respectfully submits the following report, covering matters which it proposes to bring up at the national convention:

1. Amendment to Article III, Section 1, and Article IV, Section 2, of the constitution. (Purpose: to remove inconsistencies in present membership requirements, and to insure that initiates shall have had opportunity to show "special ability for research work", as at present required in Article IV, Section 2.)

Article III, Section 1, shall be amended to read as follows: An active chapter may be established in any institution of learning which requires for graduation the equivalent of four years of collegiate work, and which is equipped with facilities for research in biological sciences to such an extent that at least one degree beyond the Bachelor's degree may be earned from that institution for the research pursued there. This amendment shall be understood to be not retroactive; that is, it shall apply only to groups seeking admission to the Society after these amendments have been adopted.

Article IV, Section 2, shall be amended to read as follows: Any person shall be eligible to active membership who has shown *special ability for research* and who has received an equivalent of at least three years of college credit, of which at least one fourth has been in biological sciences.

2. Amendment to Article II, Section 2b, of the constitution (to provide for nomination of national officers prior to the convention, such nominations to be published in advance, either in *The Biologist* or in some other form.)

Article II, Section 2b, shall be amended to read as follows: Suggestions for candidates for national offices shall be made by each chapter at least two months before the convention at which the offices are to be filled. Each chapter shall advance the name of one member of Phi Sigma for each vacant office, selecting only individuals who are affiliated with some active chapter of Phi Sigma, and submitting with their choices statements upon the personal history, training, and qualifications of the nominees for the positions for which they are put forward. The candidate for the office of Honorary Chancellor need not be affiliated with any active chapter, but must be a man of outstanding ability in his field.

From this list of suggestions, a nominating committee, consisting of the National Chancellor and two other members to be chosen by the Chancellor from the active membership of two different chapters, shall nominate at least two candidates for each office to be filled.

This list of nominees, together with statements on their personal history and qualifications and any other information upon business pertinent to the convention, shall be submitted in an official agendum to all chapters for their consideration and discussion, *at least one month* before the time of the convention.

At the convention this list of nominees may be supplemented by nominations from the floor.

Elections shall be by written ballot, a majority vote being required to elect.

3. Amendment to Article II, Section 4, to require advance publication of agenda for the National Convention. Add subsection (d): At least one month before the time of the convention the National Chapter shall send to each of the chapters an official agendum providing the list of nominees decided upon by the nominating committee, together with statements on their personal histories, training, and qualifications, and any other information on business pertinent to the convention that the National office is able to submit at that time.

4. Elimination or modification of the scientific sessions. At least two months before the National Convention each of the chapters shall submit titles and abstracts of as many papers as it wishes to an Editorial Board, chosen by the National Chancellor.

The abstracts of these papers, if they are accepted by the board, shall be printed in *The Biologist*, or in some other form. In addition the committee will select from these the twelve best papers, which shall be read (by their authors or by the delegates from the chapters by which the papers were submitted) in a single *three hour* session, allowing 12 to 15 minutes for each paper.

Zeta Chapter wishes to make the following recommendations to the nominating committee:

For the office of National Chancellor:

Dr. Harley J. Van Cleave, professor of zoology at the University of Illinois since 1929. Graduating from Knox College in 1909, Dr. Van Cleave received a Ph.D. from Illinois four years later. He has successively held the positions of instructor, assistant, professor, associate professor, and professor in that institution. He is a member of the A. A. A. S., the American Microscopical Society (of which he was secretary and editor 1925-31, president in 1931), the Fisheries Society, Society of Parasitologists, and the Illinois Academy (of which he was vice president in 1924, president in 1927). His research is concerned with parasitology

and invertebrate zoology, and his studies of the Acanthocephala have won world-wide recognition.

Also for the office of National Chancellor:

Dr. Woolford B. Baker, professor of zoology at Emory University since 1926. Graduating from Henderson-Brown College in 1913, where he was instructor the following year, he took a M.S. at Emory in 1920. From 1922 to 1924 he was professor of biology and head of the department at Agnes Scott College. He received a Ph.D. from Columbia in 1926, and since that time has filled a professorship at Emory. Dr. Baker is a member of the A. A. A. S., the American Microscopical Society, and the Georgia Academy. His research is concerned with the cytology and physiology of the Euglenoidina.

For the office of National Treasurer:

Mr. Humphrey G. Owen, associate professor of zoology at the University of Denver since 1925. Mr. Owen graduated from the University of Denver in 1914, and received a M.A. the following year. He was instructor at Denver in 1915-17, professor of biology at New Mexico Normal University in 1918-19, assistant professor at Montana in 1919-25, and since has served as associate professor at the University of Denver. Mr. Owen is a member of the A. A. A. S. and the Colorado-Wyoming Academy; his research is concerned with experimental embryology.

May I say in support of these nominations that all of these men are listed in *American Men of Science*, and all are known personally to at least one member of the committee from our chapter which nominated them. Dr. L. E. Noland, a former national officer of Phi Sigma, served on this committee. These suggestions were unanimously adopted by vote of Zeta Chapter.

Kappa

President—Charles Wolfson, 227 Snow Hall, Univ. of Kansas, Lawrence.

Vice-President—Monti L. Belot, 606 Snow Hall, Univ. of Kansas, Lawrence.

Secretary—Rufus Thompson, 415 Snow Hall, Univ. of Kansas, Lawrence, Kan.

Treasurer—Virginia E. Detlor, 1244 R. I. Lawrence, Kansas.

We have no recommendations to be acted on in the national convention.

We have no nominations for National Chancellor or Treasurer.

We have the following chapter news.

Our spring initiation banquet was held Thursday, May 13, 1937 at the University Club at which time the following initiates were elected into membership:

Bacteriology—Miss Mary Abts
 Botany—Miss Florene Briscoe, Mr. Raymond Kuszmaul
 Entomology—Mr. Warren Craik, Mr. Henry Thomas
 Physiology—Mr. Richard Davis
 Zoology—Mr. Edgar Beahm, Mr. Luke Ponder,
 Mr. Max Wheatley

After the banquet and initiation ceremony we adjourned to the Central Administration auditorium to hear Dr. Edmund V. Cowdry speak on "How Living Cells Manage their Social Problems".

RUFUS H. THOMPSON, *Secretary*.

Mu

President—Paul De Bach, 112 Agriculture Hall, University of California, Berkeley, California.
Vice-President—William McOmie, 2441 Haste St., Berkeley, Calif.
Treasurer—William Upholt, 112 Agriculture Hall, University of California, Berkeley, California.
Secretary—Elizabeth Richardson, 2605 Haste St., Berkeley, California.

At the first meeting of this semester, Dr. E. O. Essig, of the Department of Entomology, gave a most interesting and delightful lecture, illustrated by slides, on "Biology in European Art".

The speaker at our second meeting was Dr. Richard Goldschmidt. He discussed "Some Problems of Evolution".

At the next meeting, the initiation banquet, we initiated nineteen people. We heard Dr. S. F. Freeborn talk on "The History of the Agriculture Experimental Station".

The speakers at our last two meetings are to be:

Dr. C. W. Porter—"Recent Advances in Organic Chemistry".

Dr. R. L. Olson—"Differences in Racial Mentality".

The following persons were initiated, on October 27:

Benedict Abreu	John Johnson
Edward Baker	Lowell Jones
Kathryn Buchanan	Frances Kimura
Robert Dickson	Margaret Pollard
Vera Greaves	Jane Powell
Morgan Harris	Lawrence Reinecke
Philip Hawkins	Frederick Shelden
Paul Illg	Nobuko Shimotori
Dilworth Jensen	Hiroshi Sugiyama

Reese Vaughn (faculty)

We of Mu chapter have recently been faced with fundamental problems concerning the Society. The recent letter from Zeta chapter in many ways expresses our problems and sentiments; in addition to their presentation, we should like to stress and elaborate on some points as they have particularly affected us. We feel that these questions are fundamental to the welfare of the Society and should be discussed at the convention in December.

Located at a State University, the members and prospective members of Mu chapter are usually earning their way through the University, and a few dollars loom large. It is the feeling of the chapter that National fees and dues are too high, making it difficult for the local organizations to obtain a desirable element of those persons eligible, due to financial difficulties. This fall, for example, a good half of the large list of those students elected to membership declined the honor because of an inability to pay the fee. This problem becomes even more acute, and of more importance to the Society when it is pointed out that too large a proportion of these refusals are from the most distinguished of those elected. We feel that other chapters are also faced with the same problem, and that it is not the purpose of our Society to substitute a financial criterion for that of scientific promise in the admittance of new members. Mu chapter would like to make the following suggestions to avoid this difficulty, hoping to cut the National expenses, and hence the required fees and dues.

- (1) Each local chapter should pay the traveling expenses of its own delegate to the National Convention;
- (2) The subscription price of the Biologist to members should be reduced to cost, and paid directly by the members of the chapters;
- (3) Excessive elaborateness of the Biologist should be reduced;
- (4) General running expenses of the Society should be reduced where ever possible.

It is suggested, at the same time, that a portion of the savings thus effected could be used effectively by the local chapters in enhancing their prestige by means of establishing annual research prizes, loan funds, or similar projects, which act as research stimulants for worthy students.

Our viewpoint is similar to that of Zeta chapter, with regard to qualifications for admittance of individuals and new chapters to the Society. We feel that junior students cannot be judged as to prospective research ability, and assuredly have not yet developed to the point of doing productive research. Accordingly, it is proposed that Art. IV, Sec. 2, be reworded as follows.

"Eligibility to membership shall be restricted to persons of good moral character, who, having shown special ability for research work, having the equivalent of at least three years of college credit, and being in the upper tenth of their class, have at least one-fourth of their work in biological science; and to persons of good moral character who are outstanding graduate students and engaged in research in biological science leading to an advanced degree. In addition any person who is a competent biologist etc."

With regard to Art. III, Sec. 1, the additional qualifications should be added, that the institution should be on the list of accepted institutions of the Association of American Universities, and be able to support a chapter under Art. IV, Sec. 2, as above amended.

It is further suggested that to Art. II, Sec. 3, (f) dealing with the duties of the National Treasurer, be added a third duty. "(3) To publish annually in the Biologist a detailed statement of monies received and disbursed by the National organization".

Having the good of Phi Sigma in mind, and desiring to enhance its national and local reputations, we join with Zeta chapter in requesting that these matters be brought before the National Convention.

As a further suggestion regarding the coming election of national officers, we would like to nominate as Mu Chapter's choice for National Chancellor, Prof. W. B. Herms, head of the Dept. of Entomology and Parasitology at the University of California.

Dr. Herms is regarded by many as the "Dean of American Medical Entomologists." He has served as President of the American Association of Economic Entomologists and of other organizations too numerous to mention in this short note. Incidentally, he has just received the Benjamin Ide Wheeler Award, as Berkeley's most distinguished citizen for the past biennium, which is an indication of his great activity along social, as well as, scientific lines. His qualifications are numerous and outstanding and may best be checked by the National Nomination's Committee.

Mu Chapter has had two very successful meetings thus far, and we look forward to an exceedingly active and worthwhile year. Our policy is to have a well-known Biologist speak to us at each meeting, as exemplified by the following:

Prof. E. O. Essig—"Biology in European Art."

Dr. Richard Goldschmidt—"Some Aspects of Evolution."

Twenty-seven students and four faculty members have been elected to membership this fall, of which some fifteen have indicated their intentions of accepting membership.

Mu chapter has elected Thomas Aitken as delegate to the National Convention.

PAUL DE BACH, *Chapter President.*

ELIZABETH RICHARDSON, *Chapter Secretary.*

Nu

President—Arch Logan, Jr., Phi Gamma Delta, Washington, Penna.

Vice-President—R. M. Kiskaddon, 335 E. Wheeling St., Washington, Penna.

Secretary—W. M. McConahey, Phi Delta Theta, Washington, Penna.

Treasurer—R. B. Donaldson, 237 E. Wheeling St., Washington, Penna.

Nu Chapter of Phi Sigma Society carried on an active program last spring. The chapter sponsored a Scholarship Day for the entire school last April, at which time awards for outstanding scholarship were presented. During Phi Sigma's share in the program, the names of the new men elected to membership were announced and a *Cunningham's Anatomy* was given to the school.

The four new initiates are F. H. McNutt Jr., Gabriel Marino, R. C. Montgomery, and S. F. Waddill—all of the class of 1939.

This year the society is planning a full schedule. At the regular bi-monthly meetings, papers are presented by the members on interesting subjects which the member has often investigated himself.

W. M. McCONAHEY, JR., *Secretary.*

W. M. McConahey is to represent Nu Chapter at the National Convention in Indianapolis this December. Nu Chapter has no nominees for the offices of National Chancellor or for National Treasurer.

Respectfully yours,

ARCH LOGAN, JR., *President.*

Tau

President—Kenneth H. Garren, Dept. of Botany.

Vice-President—George W. Wharton, Dept. of Zoology.

Secretary—Sarah Culbreth, Dept. of Zoology.

Treasurer—Katherine Goffin, Dept. of Zoology.

Our only recommendations to the National Convention are that a serious effort be made to reduce national expenses in-order-to reduce

initiation fees, and that a more definite statement of eligibility be written into the present constitution. We feel that at least three years of undergraduate work should be a prerequisite to membership.

We are unacquainted with Phi Sigma leaders elsewhere and therefore are instructing our delegate George W. Wharton to use his own discretion in voting for national officers. We make no nominations.

We see no necessity for changing any of the present procedure of the Society, unless it be for stricter economy and does not interfere with the orderly manner in which the Society is now being managed.

This year promises to be another very successful one for Tau Chapter. The excellent cooperation given our organization by all the members of the faculty plus the active interest of almost every member has made this group one of the most useful academic societies on the campus.

The following Seniors were initiated at the final Spring meeting: Katherine White, Carol Wilkinson, John J. MacDermott, Kenneth Korstian. They are all engaged in graduate work this year, Miss White at Duke, Miss Wilkinson at Connecticut Woman's College, Mr. MacDermott at Rutgers, and Mr. Korstian at Yale Forestry School. W. L. Williams initiated from the Graduate School is still at Duke.

Dr. Hall of the faculty, and Woodrow Wilson, Sarah Culberth, John Ayers, and Katherine Goffin were at Woods Hole for part of the Summer. Dr. Cunningham of the faculty and W. L. Williams were at Cold Springs Harbor. John Ayers, and G. W. Wharton were at Beaufort, S. C. Mr. Wharton with the U. S. Bureau of Fisheries.

W. R. Hard, a member of Tau Chapter last year is now on the faculty of the University of Maryland, P. D. Altland is on the faculty of Gettysburg College.

Recent publications by faculty, alumni, and active members of Tau Chapter:

W. D. Billings, S. A. Cain, and W. B. Drew. Winter key to the Trees of Eastern Tennessee. J. South. Appal. Bot. Club.: II. 1937.

T. S. Coile. Composition of the Leaf Litter of Forest Trees. Soil Sci. 43: 1937.

Blomquist, H. L. Hepaticae from Mountain Lake, Virginia. Clavtonia 4: 1937 and Hepaticae of North Carolina. Bryologist 39: 1936.

Donovan S. Correll. The Orchids of North Carolina. J. Elisha Mitchell. Sci. Soc. 53: 1937.

E. S. Harrar with W. M. Harlow. Textbook of Dendrology. McGraw Hill, Co.

E. S. Harrar with J. Elton Lodewick. What Wood is That? *Timberman* 38, 1937.

P. J. Kramer. An improved Photoelectric Apparatus for Measuring Leaf Areas. *Amer. Jour. Bot.* 24: 1937 and Photoperiodic Stimulation of Growth by Artificial Light as a Cause of Winter Killing. *Plant Phys.* 12: 1937.

C. F. Korstian. What Water Means to the Forest. (Invitational Address) Report Mich. Acad. Science, Arts, Letters. 1937. The Need for Forest Education in the South, *Proc. Ga. Forestry Assoc.* 1937, and Perpetuation of Spruce on Cut Over and Burned Lands in the Higher Southern Appalachian Mountains. *Ecol. Monographs.* 7: 1937.

A. S. Pearse. *For Science. Scientific Monthly.* 45: 1937.

F. A. Wolf, and P. M. Gross. Flue Cured Tobacco: a Comparative study of Structural Responses Induced by Topping and Suckering. *Bull. Torrey Bot. Club.* 64: 1937 and with B. B. Higgins. Frosty Mildew of Peach. *Phytopath.* 27: 1937.

K. H. GARREN, *President.*

Upsilon

President—James Cattell, 110 Elliot Hall, Miami University, Oxford, Ohio.

Vice-President—Kenneth Penrod.

Secretary—Roger Williams.

Treasurer—James Fisher.

Upsilon Chapter has been quite active this year in that it has had a number of well-known speakers at several of its meetings. We have found that having outside speakers, has created a great deal of interest in the society.

Last month, Dr. C. A. Mills, of the University of Cincinnati Medical School and well known authority on the influence of climatic conditions upon health, spoke to us on "How Climate Influences Health".

We have found that our annual spring field trip to locate points of biological lore are very successful and enjoyed very much by all.

If any other chapters have any suggestions as to how we might make our meetings more interesting, we should be very glad to hear from you.

List of spring initiates:

Virginia Ballard

James Brooks

Ohmer Buhbe

William Carlton

Charles Lyons

Richard Mosbaugh

Kenneth Penrod

William Ryan

Dr. P. S. Crowell
Robert Haines

Edward Schneider
Perry Seal

Roger Williams

List of persons to be initiated this fall:

Larry Bell
Monica Benefiel
Delmar Fread
Uarda Heffelfinger
Hulda Heller
Dale Kessler
Norman Korn
Clarence Kruse
William Lunsford
Ann North

Jean Palmer
Raymond Ray
John Roth
William Rothe
John Sorles
Kenneth Sommerlot
M. A. Stephenson
Robert Stephenson
Robert Stevens
Herbert Swanson

Dave Marberg

ROGER WILLIAMS, *Secretary, Upsilon Chapter.*

Phi

President—Miss Eleanor Sheehan, Zoology, University of New Hampshire, Durham, N. H.

Vice-President—Alfred Chandler, Zoology, Commons, Durham, N. H.

Recording Secretary—Mrs. Patricia MacLeod, Bacteriology, University of New Hampshire, Durham, N. H.

Treasurer—Miss Mary Ringley, Horticulture, University of New Hampshire, Durham, N. H.

Corresponding Secretary—Joseph Naghski, Bacteriology, University of New Hampshire, Durham, N. H.

We have elected Miss Eleanor Sheehan, our active president as a delegate and Mr. Robert Eadie as alternate delegate to the coming National Convention. I am very glad to announce that our chapter is unanimous in the renomination of Dr. Erwine Hall Stewart for National Treasurer, in deep appreciation of his exceptionally good work.

We are also greatly pleased to announce that in a very recent initiation, we admitted twenty-one candidates into the chapter:

Dr. Lloyd C. Fogg
Mrs. Lloyd C. Fogg
Miss Barbara Miner
Mr. Willard Breon
Mr. Elwood Pierce
Mr. Walter Weekes
Mr. Charles O'Neill

Miss Margery Upton
Miss Elma Pentilla
Miss Hilda Batchelder
Mr. Philip Harvey
Mr. Dean Edson
Mr. Charles LaFlamme
Mr. George Small

Mr. Laurence McLaughlin

Mr. Robert Osborne

Mr. William Jaques

Mr. Reeshon Feuer

Miss Claudia Pickess

Mr. Reginald Thompson

Mr. Winthrop Skoglund

This is one of the largest groups to be initiated into the chapter. We feel greatly honored to have in our midst, Dr. Fogg, who is doing research on the Cytological changes in Sarcoma When Exposed to Lethal Rays.

The pledging ceremony was held at Camp Manning. This is a large Boy Scout camp situated near the scenic lake Winnepesauki. The weekend excursion was held October 16, and included a hike up Mt. Belknap, from which could be seen a wonderful view of the lake and the surrounding landscape, since the autumn foliage was near its height.

We hope to make the coming year the most successful, especially with a reserve of outside speakers to stimulate new interests; papers by our own members to keep the old interests alive, and above all a National convention to give us a boost.

Since the Biologist is coming out more frequently, news will be fresher, and what stimulates interest in other chapters more, than to have news frequently? So let's go Chapters! Don't be afraid to write, for each chapter likes to know what other chapters are doing. Let's buck in and help Dr. Keefe put it across for a touchdown.

JOSEPH NAGHSKI

Psi

President—Samuel Hutchinson, Dept. of Fisheries, U. W., Seattle.

Vice-President—Clarence Stone, College Forestry, U. W., Seattle.

Treasurer—Charles Wilson, College Pharmacy, U. W., Seattle.

Secretary—Margery Myers, Dept. of Zoology, U. W., Seattle.

In accordance with the desire expressed in the letter of October 25, Psi Chapter of Phi Sigma held a special business meeting Wednesday afternoon.

The result was not as helpful as we could have hoped, for our members were reluctant to commit themselves to any one policy for national administration until the time of the national convention. Dr. Hatch, National Vice-Chancellor, has, we feel, a broader knowledge of national administration and prospective national officers than do we. He urges us to wait until the convention before making any statements as to policy or new national officers.

We did, however, elect from our number two of the most able men we have, one for delegate to the forthcoming convention, and the other as alternative. They are, respectively, our chapter president, Sam Hutchinson and William Lanphere. Which ever one attends will undoubtedly express our views much better than we can state them at this date.

Herewith is a list of the spring initiates:

From the Department of Bacteriology—

Elsie Chilman, The Bacteria of Puget Sound.

Royal Christiansen, Bacterial Stain Technique.

Margaret Runnals, Metabolism in Connection with Tuberculosis.

From Physiological Chemistry—

Joe Goodman, Chemical Reactions in Certain Marine Organisms.

From the Department of Zoology—

Clifford Burner, Plankton Distribution in Puget Sound.

Frances Henderson, Distribution of Oysters in Puget Sound.

James Mason, Butterflies of the State of Washington.

Malcolm Miller, Birds of the Seattle Region.

Robert Pratt, Fresh Water Plankton of Whidby Island.

Irma Zintheo, A Study of the Anatomy of the Cushion Star-Fish.

Chapter News—

We are proud to announce that one of our members, Dr. Harriet Exline Lloyd, who has done considerable work on the classification of the spiders of Washington, is the holder this year of a fellowship at Yale University for study and research under the most famous spider specialist, Dr. Petrunkevitch.

Our plan for this school year is to consider each of our branches of biology and where it is going. For example, our first meeting considered the "Fisheries of the Future", a talk by Dr. William Thompson of the School of Fisheries. Our following meetings will be concerned with botany, forestry, bacteriology, biological chemistry, physiology, and pharmacy.

We are looking forward eagerly to the new and revised "Biologist".

Yours sincerely,

MARGERY MYERS, *Secretary Psi Chapter.*

Omega

President—Maxwell Power, Department of Zoology, University of Oklahoma.

Vice-President—Eleanor Galloway, Department of Botany, University of Oklahoma.

Secretary—Mildred Hawkins, Department of Botany, University of Oklahoma.

Treasurer—Fred Aurin, Department of Zoology, University of Oklahoma.

Omega chapter has planned an extensive and varied program for the coming school year. At our first open meeting, Dr. Harold Hefley spoke of some research on amebiasis which he has done at the medical school.

Dr. G. L. Cross will be our second speaker of the year when, on December 7, he will give a lecture, illustrated with tinted lantern slides of the flora of Oklahoma. In the absence of Dr. Paul B. Sears, head of the Department of Botany, who is on sabatical leave doing work in connection with Teachers College, Columbia University, Dr. Cross has taken over the work of the Botany Department as Acting Head.

Plans are being made for the dedication of the Biology Building sometime in December. New furniture and optical equipment will make it one of the finest buildings of its kind in the Middle West. A nationally outstanding man in the field of science will be the speaker at this dedication. Omega chapter will hold its annual banquet the same evening.

The new members to be initiated on November 19 will be entertained at an informal reception following the initiation. These new members will also be guests of the chapter at the dedication banquet. The following members will be initiated:

Thomas Baskett
Corene Baxter
William Felkner
Martha V. Flowers
Mary V. Graham
Lucille Harris

John Harms
Charles Moore
J. Dennis Norman
Kenneth Richter
Mary Frances Settle
James Smith

The members of Omega chapter are located in various parts of the country this fall. Mr. and Mrs. Hubert Frings, who did some very interesting work in connection with grasshopper poison, are now at the University of Minnesota, where Mr. Frings has an assistantship in Zoology. Miss Margaret Kaeiser has a research fellowship in the Botany Department at the University of Illinois, and John Merkle is a graduate assistant in the Department of Botany at Michigan State University. Several members are teaching in high schools and colleges in the state, among whom are Mr. James Boswell at Seminole, Oklahoma, Miss Mildred Pool

at Talihina, and Miss Pauline Hoisington in the Junior College at Hollis, Oklahoma.

Mr. Arthur Bragg received his doctorate from the University of Oklahoma in June, 1937. Dr. Dixie Young spent the summer at Woods Hole, Massachusetts as an independent investigator. She was granted the use of the Yale research room there. Dr. A. O. Weese of the Zoology Department, taught at the Rocky Mountain Biological Laboratory, Gothic, Colorado, last summer, and after summer school, toured the southwest, visiting the national parks. Dr. Teague Self has published an interesting paper on the "Analysis of the development of fish embryos by means of the mitotic index," IV, *Zeitschrift fur Zellforschung und mikroskopische Anatomie*. 26 Band, 4. 673-695, 1937.

Dr. Milton Hopkins is to be one of the speakers on the University Public Lecture series this year, and will give an illustrated talk on "Ornamental European Gardens," the data for which he collected this summer.

Mr. Charles Smith has been elected as official delegate to the national convention of Phi Sigma, and Maxwell Power, president of Omega chapter, will be the alternate. Omega chapter nominates Dr. Aute Richards, head of the Department of Zoology, University of Oklahoma, Norman, Oklahoma, for Chancellor; and nominates Erwine Hall Stewart, Mesa, Colorado, to continue his office.

MILDRED HAWKINS, *Secretary Omega Chapter*.

Epsilon

President—Hugh Capps, 1627 Gilpin, Denver, Colorado.

Vice-President—Chas. Hansen, 1301 Ogden, Denver, Colorado.

Secretary-Treasurer—Carol Cox, 1127 Gaylord St., Denver, Colorado.

The list of Spring Initiates:

Helen Dowling

Helen Gittings

Jean McMahon

Robert Searway

J. A. Wells

DeRoy Slagle

Blanche Ollie Young

Martha Mae Sanders

Dr. Robert M. Zingg has been chosen as a faculty member of this fraternity.

CAROL COX, *Secretary-Treasurer*.

Alpha Alpha

President—P. J. Rempel, 1051½ W. 35 St., Los Angeles, California.

Vice-President—Douglas Pearce, 722 W. 76th Street, Los Angeles, California.

Secretary—Carolyn Barnes, 8955 San Juan Avenue, South Gate, California.

Treasurer—Nathan E. Carl, 1547 W. 45th Street, Los Angeles, California.

Mr. Douglas Bothwell was installed as Treasurer but later resigned. Mr. Nathan Carl was elected to fill the vacancy.

Fifteen candidates were initiated. They included Elaine Adams, John Ariaudo, Glenn Coy, Robert Doran, C. Wayne Franz, Adelaide Gladden, Ura T. Jensen, Leanord Knarreborg, Gertrude Lindegren, Helen Moore, Willard Nesson, Elizabeth Rogers and Bernard Scott.

Candidates for Ph.D. degrees in Biological Science gave short resumes of their work. Mr. Howard Hill spoke on "Rare Parasites of Some Tropical Vertebrates". Mr. Ralph Shaw reported his work on "Measurements of the Degree of Aggregations of Small Groups of Fishes". The society was fortunate in having as guest speaker of the evening Dr. William A. Hilton, who had just returned from an extensive 50,000 mile trip around the world. Dr. Hilton illustrated his talk on "The Animal Life of Australia" with motion pictures taken by himself. The chapter's two honorary members, Dr. B. M. Allen and Dr. J. H. Comstock, were present.

The first meeting of the new school year was held at the home of Dr. and Mrs. G. R. Johnstone, October 8, 1937. The meeting was of a semi-social nature, members reporting on their travels, work and experiences of the summer with refreshments being served to climax the evening.

Summer experiences varied from Dr. Purer's report of her Adventures with a Boa constrictor while visiting in Mexico to Mr. Garth's travel and visits to all of the Museums and Scientific institutions from Coast to Coast. Members toured most of the United States, Canada, Mexico and as far south as the Galapagos Islands and Baja, California. The total mileage covered by members of the organization would amount to circling the world several times.

The November meeting of Alpha Alpha chapter will be held November 12 at 8:00 p. m. at which time two motion pictures will be shown. The first dealing with "Growing Plants Without Soil or Chemiculture" will be discussed by Dr. G. R. Johnstone of the Department of Botany. The second picture will give us an insight into the "War Between Ants and

Termites". Dr. B. M. Harrison of the Department of Zoology will discuss this picture.

CAROLYN BARNES,
Secretary Alpha Alpha of Phi Sigma.

Alpha Beta

President—John P. Smith, Sigma Nu, Mt. Union College, Alliance, Ohio.
Vice-President—Robert Maurer, Sigma Nu, Mt. Union College, Alliance, Ohio.
Corresponding Secretary—Jane Dugan, Beloit, Ohio.
Recording Secretary—Thomas Ellis, Sigma Nu, Mt. Union College, Alliance, Ohio.
Treasurer—Cornell McFadden, Sigma Nu House, Mt. Union College, Alliance, Ohio.

Last spring we initiated fourteen members into our chapter.

L. Jane Drake.....	Canton, Ohio
Jane E. Dugan.....	Beloit, Ohio
Ellen N. Evans.....	Alliance, Ohio
Donald L. Greenamyre.....	Alliance, Ohio
Richard D. Haines.....	Salem, Ohio
Raymond T. Heckaman.....	Canton, Ohio
F. Edmund Hunter.....	Alliance, Ohio
Carl H. Maggiore.....	Canton, Ohio
Ila G. McGrew.....	Alliance, Ohio
Jayne E. Nims.....	Waynesburg, Ohio
Edwin F. Ross.....	Poland, Ohio
Elsie Jane Sanderson.....	Sebring, Ohio
Jane K. Stamp.....	Alliance, Ohio
Mary E. Wearstler.....	Youngstown, Ohio

Last spring, we had a banquet at which time, the officers for this year were installed by the retiring president, Allen Donaldson.

Many of our graduates are doing graduate work in several fields of Biology. Billy Corbin, Donald Greenamyre, and Myron Pardee are in medical schools. Alvin Weis is in dental school. Randall Carlson is doing work in graduate Biology. Martha Carr and Thelma Reese are doing advance work in Bacteriology. Virginia Quinn, Virginia Simms, and Ruth Withers are taking advance training in hospitals.

Allen Donaldson is the graduate assistant in the Biology Department at Mount Union. John Smith, Cornell McFadden, Robert Maurer, Ruth Scott, Elsie Jane Sanderson, Betty Ayers, and Eleanor Pickens are assisting in the laboratories in Biology.

Dr. J. M. Scott and Allen Donaldson will be at the National Convention. We have been unable as yet to have a meeting to elect a delegate and alternate. We hope, however, to have one the first of next week so that the names may be sent in.

We feel confident that the Convention this year will be a bigger success than ever before.

JANE DUGAN, *Corresponding Secretary.*

Alpha Epsilon

President—Dr. Edna Higbee, 1009 Cathedral of Learning, University of Pittsburgh.

Vice-President—Kenneth Bergstresser, 1009 Cathedral of Learning, University of Pittsburgh.

Secretary—Mr. Herbert McCullough, 1009 Cathedral of Learning, University of Pittsburgh.

Treasurer—Dr. William Starkey, 1009 Cathedral of Learning, University of Pittsburgh.

At the initiation held last year on April 30, 1937 the following people were initiated:

Esther Alker

Kenneth Bergstresser

Olive Bown

Mariane Bougher

Howard Bradley

Edward Brethauer

Annabelle Broomall

Olga Catizone

Paul Davisson

Herbert McCullough

Miriam Malakoff

Anthony Miklaucic

William Sulzbacher

James E. Drummond

R. Dale Smith

George R. Hunt

William Leathen

Velva Seyler

Harvey Crass

Frank Curto

Paul N. Walker

Russell Vogel

Roscoe Gougler

Robert Pierson

Harold Howland

Charles DeMoise

Robert Templeton

J. R. Steck

Adolphe F. DeWerth, Faculty member

It was noticed that in the last *Biologist* (March-May 1937) The University of Pittsburgh Biological Station was omitted from the list of various labs and summer schools. We would like to mention a word or two about this station which is commonly called the Lake Laboratory and is located on Presque Isle, at Erie, Pennsylvania. Presque Isle is actually a peninsula extending into Lake Erie. There is a beach of seven miles and the entire area is used by the students in the summer field course. By

walking from the tip of the peninsula back about four miles it is possible to cover 700 years of plant successions from beach formation to the climax forest. Likewise, there is a definite progression of animal life according to the plant successions and according to the origin of ponds which vary in age from newly formed ones to ponds of several hundred years of age. The course this past summer was conducted by Dr. Warren Witz, the past president of our chapter.

This year AE chapter has issued a thirty-two page yearbook which lists all committees, officers, active members and included a program of both the regular meetings and social events for the entire year. The program is a splendid one and we are proud of the book. It represents the fine spirit here at this chapter.

The opening event of Alpha Epsilon's program was a corn roast held the first week of school. This event featured a fine meal cooked by the members and featuring fried chicken and roast corn. Despite the untimely arrival of darkness, the affair was an excellent method of opening the year and getting everyone acquainted.

The first regular meeting was held on October 15th with Dr. Bert E. Quick of Westminster College speaking on *Botanical Impressions of Puerto Rico*. Dr. Quick illustrated his interesting talk with colored movies and slides.

Dr. Henry Idzkowsky and Miss Velva Seyler were married August 30, 1937. Dr. Idzkowsky has accepted a teaching position at St. Francis College, Loretto, Penna.

Dr. Henry Homer Collins, faculty member of Alpha Epsilon Chapter, died August 31, 1937. His personality and teaching ability had made him admired by faculty and students alike. His experience both in high schools, institutions of research, and universities both here and on the west coast gave him a fine background which was felt by everyone who came in contact with him.

HERBERT McCULLOUGH, *Secretary*.

Alpha Eta

President—Ray Murrell, 227 N. Knoblock, Stillwater.

Vice-President—Gerald Steelman, 223 Elm, Stillwater.

Secretary—Susann Fry, Murray Hall, Stillwater.

Treasurer—Tom Graham, 713 College Ave., Stillwater.

Delegate to National convention: Ray Murrell. Alternate: Tom Graham.

Alpha Eta chapter would like the following discussions placed on the agenda of the convention:

1. Possible reduction of national initiation fees.
2. A change in the by-laws closing all business meetings at which chapter plans and business are discussed. We feel that open business sessions lay the chapter open to possible criticism and attack.
3. Recognition of student research papers by the national organization. We believe this might be a stimulus to the actual writing of papers. Perhaps the national organization might aid the chapter in giving an award.
4. Possibility of various degrees of membership such as apprentice or associate members, active members and faculty members. By taking apprentice members students would be allowed to grow into the organization.

CHAPTER NEWS

The following students were initiated April 7, 1937.

Elliott Barrick

Floyd Gregarch

Tom Graham

Herman Oakes

Oben Simonsin

A picnic was given last spring to honor these new members.

This chapter has been planning an award to be given to the student who writes the best paper on a biological subject. It is planned to allow both graduate and undergraduate students from the campus-at-large to compete. Graduate students will be restricted in that they cannot use their thesis work for the paper. Plans will be completed after the fall initiation.

Dr. K. Starr Chester, the new head of the Botany and Plant Pathology department, was the first speaker on this year's list. Dr. Chester, who comes to us from the medical division of the Rockefeller Institute, gave a very interesting talk on the use of blood serum as a protein indicator. Blood is not only useful in criminal cases and "mixed" baby cases, Dr. Chester pointed out, but may be used to advantage in plant disease determination.

Our fall banquet and initiation is being planned for November 7.

SUSANN FRY, *Secretary*.

Alpha Theta

President—Jack R. Nail, College Station, Pullman, Wash.

Vice-President—Stanley G. Mittelstaedt, 601 Campus, Pullman, Wash.

Secretary—Irwin M. Newell, c/o Dr. E. O. Holland, Pullman, Wash.

Treasurer—Paul Kramer, College Station, Pullman, Wash.

The following were initiated into Alpha Theta Chapter, June 2, 1937:

Howard H. Fricke

Joseph B. Rogers

Rodney A. Hansen

Len B. Wooton

Frank T. Lavagetto

Shuko Yoshihara

Margaret A. Moore

Dr. Hilton A. Smith

Leonard Machlis and Bruce Cooil are studying under Dr. H. F. Clements at the University of Hawaii this year. Dr. Clements, well known in the field of plant physiology, resigned as instructor at Washington State last Spring to accept a position at Hawaii.

IRWIN M. NEWELL, *Secretary Alpha Theta*.

Alpha Mu

President—John M. Pierson, Fine Hall, Corvallis.

Vice-President—Dean Painter, 342 S. 3rd Street, Corvallis.

Secretary—Clara Chapman, 136 N. 30th, Corvallis.

Treasurer—Frederick Cramer, Weatherford Hall, Corvallis.

In May, 1937 Alpha Mu initiated the following:

John Bergen

Edwin Lofquist

William Graf

Martha Jane McCully

Stanley Jewett

Ian MacDonald

Wilfrid Kennell

Merle Markley

Katharine Lathrop

Banner Bill Morgan

Liang-tung Lin

Geoffrey F. Osler

Tsui-chieh Liu

Dean Painter

Elden Yeoman

The address of our first open meeting was "The Paleontology of Oregon" given by Dr. E. L. Packard, Dean of the School of Science. The sponsoring of open meetings is a new experiment for Alpha Mu Chapter, and the response to the first meeting was most gratifying. On December first an open forum on "The Philosophy of Science" will be held. Those participating represent the fields of Psychology, Religion, Biology, and Physics.

Banner Bill Morgan, our delegate to the National Convention, has been very active in research. His paper on the "Golgi Apparatus of Plant Cells" has recently been submitted for publication. Others in the chapter who have research papers are preparing them, so that they might be presented at the National Convention if so desired.

Sincerely yours,

CLARA CHAPMAN, *Secretary*.

136 N. 30th, Corvallis, Oregon.

Alpha Nu

President—Martin W. Fleck, 704 Ridgecrest Drive, Albuquerque, N. M.

Vice-President—Carolyn Miles, 1400 East Roman Ave., Albuquerque, N. M.

Secretary—Mary Jo Starrett, 424 North 14th St., Albuquerque, N. M.

Treasurer—Charlotte Gooding, 123 Vassar Ave., Albuquerque, N. M.

Alpha Nu Chapter of Phi Sigma, located on the campus of the University of New Mexico in Albuquerque, New Mexico, is still in its infancy, having been founded in April, 1935. Each year sees as ever increasing interest in the organization. The members, who constitute a select group, consider it an honor to be elected to the society. The officers for this year are vitally interested in the organization and are endeavoring to encourage biological research. We are anticipating a most successful year.

Regular meetings are held on the first and third Thursdays of each month. So far this year the meetings have been interesting and educational and have included a talk by Dr. George Peterson, of the University Psychology Department, speaking on "Handedness in Rats," followed by a paper given by a local physician on Syphilis. Professor C. H. S. Koch, who spent the past summer in Germany studying for his doctor's degree, spoke on "Hitlerian Biology," discussing the particular type of biology taught in Germany at present, emphasizing the Aryan influence.

The program, as arranged for the remainder of the year, will include a number of guest speakers. Dr. W. H. Bell, professor of botany at U. N. M. is to talk on the "Ethnobiology of Southwestern Indian Tribes." Dr. W. H. Long, retiring member of the Forest Service in Albuquerque, will address the group on some phase of forest pathology. "Biology on the Campus of the University of New Mexico" is the subject chosen by Dr. E. F. Castetter, head of the Biology Department at U. N. M. Dr. John E. Englekirk, Jr., who took extensive notes on a recent trip to Central and South America, will discuss the "Flora and Fauna of the Caribbean Area." The Superintendent of the Los Lunas Asylum, Dr. Blakeslee, will also be a speaker.

There are a number of student papers to be presented. The subjects are based upon research work carried on by the students. The topics include: "Penguins," "Inheritance of Agglutinogens M and N among Navajo Indians," "The Eradication of Dandelions in Lawns," "Aboriginal Uses of Cacti" and "Important Southwestern Muhlenbergias," which paper is to be presented at the Phi Sigma Convention in Indianapolis in December.

A unique social event planned for the near future will take the form of a combined hayride and party at a member's home.

The first initiation of this year will be held December 16, at which time the following people will be initiated:

Henrietta Bebbber	Eunice Johnson
Mabel Downer	Nathaniel Landau
Betty Gordon	Virginia Machen
Robert Hanks	John Sheldon

Clarence Tarzwell

Phi Sigma members from other chapters are cordially invited to visit Alpha Nu Chapter. We will be happy to show and discuss problems in Ethnobiology and other branches of biology which are being carried on. We believe that members elsewhere will find much of interest in this beautiful Southwest and especially in the Indian country around New Mexico.

Alpha Xi

President—Wilfred David, Alpha Epsilon Pi House, Rhode Island State College, Kingston, Rhode Island.

Vice-President—Phyllis Mahler, Chi Omega House, Rhode Island State College, Kingston, Rhode Island.

Secretary—Angelina Matarese, Chi Omega House, Rhode Island State College, Kingston, Rhode Island.

Treasurer—Edgar Arnold, Tau Kappa Epsilon House, Rhode Island State College, Kingston, Rhode Island.

Alpha Xi Chapter of Phi Sigma resumed its activities for the year, October 18, 1937. The guest speaker for the first meeting was Dr. Everett Christopher, prominent research professor of the State College Experiment Station. His topic was based on the work of Experiment Station and its results. He discussed fungicides and their effects on plants as seen through the work at the Experiment Station. The lecture was followed by a discussion.

Edgar Arnold and Henry Turner were chosen as delegate and alternate respectively to the Convention.

Active members of Alpha Xi are:

Wilfred David	Joseph Scott
Phyllis Mahler	James Masterson
Edgar Arnold	Henry Turner
Angelina Matarese	Donald Emery
Allan White	Ronald MacDonald
Walter Machala	Edmund Hackman

Alpha Xi plans the election and the initiation of new members in the near future.

Eta

President—Jon Malamatinis, 336 Waverly Place, Akron, Ohio.

Vice-President—Mitchell Kuhar, 1137 Marcy Street.

Secretary—Gwenneth Foss, 584 Vinita Avenue, Akron, Ohio.

Treasurer—William Ireland, 461 E. Buchtel Avenue, Akron, Ohio.

Pi

Secretary—Morris S. McVeehan, Box 3, Emory University, Georgia.

Iota

President—Kenneth Gayer, Zoo. Dept., Washington Univ., St. Louis, Mo.

Vice-President—Ruth E. Peck, Missouri Botanical Garden, St. Louis, Mo. (or: 1402 Elm Street, Grinnell, Iowa).

Secretary—Marian Smith, 6342 Delmar Street, St. Louis, Mo.

Treasurer—G. T. Johnson, Botany Dept., Wash. Univ., St. Louis, Mo.

Lambda

President—Frank Stanton, 540 Daly Ave., Missoula, Montana.

Vice-President—Hervey Sannan, South Hall, Missoula, Montana.

Treasurer—Bob Walker, 532 South Sixth East, Missoula, Montana.

Secretary—Ted Walker, 532 S. Sixth East, Missoula, Montana.

Rho

President—Ralph Dexter, 301 Nat. Hist. Bldg., Urbana, Illinois.

Vice-President—Virginia Gangstad, 200 Hist. Bldg., Urbana, Illinois.

Treasurer—Margaret Middleton, Hist. Bldg., Urbana, Illinois.

Secretary—Wm. Marberry, 204 History Bldg., Urbana, Illinois.

Sigma

President—Lewis Berner, Biology Dept., Univ. Fla., Gainesville.

Vice-President—E. Van Laer Lipscomb, Bacteriology Dept., Univ. of Fla.

Secretary—Miss Kathleen V. Wheeler, Entomology Dept., Experiment St., Fla.

Treasurer—Murrill C. Futch, Animal Husbandry Dept., Univ. of Fla.

Chi

President—Peter Matischeck, Lewis Hall, Bozeman, Montana.

Vice-President—John Buzzetti, Sigma Chi House, Bozeman, Montana.

Secretary and Treasurer—Veda Jacobs, 520 West Main, Bozeman, Montana.

Alpha Kappa

President—Miss Alwin Winstein, 1456 Wilkins Avenue, New York City.

Vice-President—Mildred Maisler, 1931 Walton Avenue, Bronx, New York.

Secretary—Irene Borek, 2199 Holland Avenue, New York, New York.

Treasurer—Mildred Schweiger, 64 Jersey Place, New York, New York.

Alpha Lambda

President—Paul Neilson, Bio. Dept., Univ. of Utah.

Vice-President—Mrs. Beth S. Hansen, 841 Sherman Avenue, Salt Lake City.

Secretary—Albert Grundman, Bio. Dept., University of Utah, Salt Lake City.

Treasurer—Marian Woodbury, 248 University, Salt Lake City.

Alpha Zeta

Secretary—Louise C. Hall, Box 116, Williamsburgh, Virginia.

After making his analysis of the Harvard Class of 1911, John R. Tunis wrote a book *Was College Worth While?* The chief ambitions of his old classmates are "to vote the Republican ticket, to keep out of the bread line, and to break 100 at golf." Their favorite reading is the sports page of the newspapers and an occasional magazine. They know little about punctuation and their style is that of a grammar school boy. Author Tunis wonders just what they got out of college. Both editorial writers and advertising writers can make use of the material in this book.

BOOK REVIEWS

Reviews printed here represent the candid opinions of various readers, not necessarily those of the members of the National Council, nor even those of the Editor.

AFRICA'S GOD, JOSEPH J. WILLIAMS,
Boston College Press, Chestnut Hill,
Mass., 1936. \$3.00.

After six years in close contact with the colored folk of Jamaica, West Indies, the author of this series of monographs determined to satisfy his curiosity over the sources of the beliefs he found in the Jamaican colored people. The results of a historical survey most objectively pursued, are here presented in five papers of varying lengths, entitled 1. Gold Coast and its hinterland, 2. Dahomey, 3. Nigeria, 4. French West Africa, 5. Congo and Angola, 6. Uganda. As a survey of all that has been observed by explorers, travellers and missionaries, both Protestant and Catholic, relative to the beliefs of the congeners of our American colored people, this series is invaluable anthropological source material.

AMERICA'S YESTERDAY, F. MARTIN BROWN, J. B. Lippincott Co., Philadelphia, Pa., 1937. \$3.50.

Prehistory of the Mayas, Aztecs, Incas and the Mound Builders, popularly delineated, with a wealth of excellent illustrations, diagrams and sketches, make up a valuable book for public and school libraries. There is a good general bibliography, but little, if any, close documentation of individual statements. It offers a very satisfactory survey of early American cultures.

APES, MEN AND MORONS, ERNEST ALBERT HOOTEN, G. P. Putnam's Sons, New York, 1937. \$3.00.

Various lectures by the famous Harvard anthropologist are here brought together into a coordinated study on past evolutionary processes and future evolutionary possibilities for the human race. As a result this book is no dry-as-dust treatise. It has all the vitality and sparkle of the author's original personal presentation. While the author will find many who will not agree with him on his theory of the

necessity of a biological purge to improve modern society, there is no question that he has made his point clear beyond the peradventure of misinterpretation.

ASCARIS, RICHARD GOLDSCHMIDT, Prentice-Hall, New York, 1937. \$3.25.

The subtitle of this absorbingly interesting survey of general zoology is "The Biologist's Story of Life." At once the reader's doubts as to its nature and purpose are set at rest. However, one must not become too casual in his estimate of the work. It is, although popularly written, alarmingly complete. One imagines that it would make a much better text for these modern surveys, or "comprehensive" courses in zoology than many another textbook now on the market.

ASPECTS OF SCIENCE, TOBIAS DANTZIG, The Macmillan Co., New York, 1937. \$3.00.

Stealing a leaf out of the books of the churches, the mathematician who wrote this book has produced what might aptly be called (as indeed it is inferred in the publisher's announcement) the dogmatic philosophy of science. To the objective biologist the book is a bit puzzling at times, perhaps not so much so to a mathematician. Like a good theologian of the ancient schools the author concludes his work with the following exhortation: "Read your instruments, and obey mathematics; for this is the whole duty of the scientist."

BRITISH STEM AND LEAF FUNGI, Vol. II, W. B. GROVE, Cambridge University Press, New York, 1937. \$6.00.

This is the promised second volume dealing with the Sphaeropsidales and Melanconiales. Those who were impressed by the first volume, and all those plant pathologists who desire to make comparative references or studies

on these forms, will want to possess this completing volume in a valuable set. Occurrence of the various type forms is noted not only from Great Britain, but from other parts of the world, including the United States as well.

CLINICAL PARASITOLOGY, C. F. CRAIG and E. C. FAUST, *Lea & Febiger, Philadelphia, 1937. \$8.50.*

Presented by two members of the department of tropical medicine in Tulane University, this new work covers a field in which not only students of medicine, but practising physicians will want to bring or keep their knowledge up to date. As a reference work in the purely biological fields of protozoology, helminthology and entomology it will be of service. It is well illustrated with a lot of material new to the ordinary biologist.

THE DEFINITION OF PSYCHOLOGY, FRED S. KELLER, *D. Appleton-Century Co., New York, 1937. \$1.00.*

Beginning with Descartes this work discusses the four modern psychological systems which have proven most popular, structuralism, functionalism, behaviorism, and Gestalt. Beyond these the author is not concerned with any other psychological systems. The book should be of interest to modern educators and those philosophers who still regard psychology as a part of philosophy.

ECOLOGICAL ANIMAL GEOGRAPHY, RICHARD HESSE, W. C. ALLEE and K. P. SCHMIDT, *John Wiley & Sons, New York, 1937. \$6.00.*

This rewritten edition of Hesse's famous German work "Tiergeographie auf oekologischer Grundlage," comes at an opportune moment. A renewed interest in the ecological aspects of the biological sciences makes any foreign contribution which appears in English a decided asset. We Americans are too utterly unilingual for the best interests of our science. When practically every undergraduate student in Ecology is circumscribed in his reading by his lack of foreign languages the translation of this important work is particularly fortunate. It must not be understood, however, that this book is a mere translation. The editors have, with the origi-

nal author's assistance, brought their subject up to the last minute in ecological research. When such obviously excellent works as this are appearing in animal ecology, and when others also appear in the botanical aspects of the subject, one wonders when the much needed general ecology covering both fields is going to be produced.

GENETICS AND THE ORIGIN OF SPECIES, TH. DOBZHANSKY, *Columbia University Press, New York, 1937. \$3.70.*

The one part of Darwin's original theory which still holds water is his idea of natural selection. How species originate, of course, has been a not altogether incontroverted question. In this new work Dobzhansky has marshalled the cytological, genetic and ecological evidence for the origin species. He brings to the general reader a wealth of hitherto unavailable data which has been accumulated in the research laboratories of the Soviet Union. It will be interesting to see how far the scientific world accepts the thesis of the professor of genetics at California Institute of Technology.

HYDROIDS OF THE PACIFIC COAST OF CANADA AND THE UNITED STATES, C. McLEAN FRASER, *University of Toronto Press, Toronto, 1937. \$2.50.*

Illustrated with more than 700 accurately drawn sketches, this systematic manual of the hydroids from the Mexican border to the waters of Alaska becomes a very welcome addition to the biological library. The 233 species are not only described, but their distribution is also catalogued, thereby contributing not only to our knowledge of the species, but also to the marine ecology of our western shores.

MARINE FISHES OF SOUTHERN CALIFORNIA, PERCY SPENCER BARNHART, *University of California Press, Berkeley, 1936. \$4.00.*

Fishermen, as well as biologists, will be interested in this manual of the marine forms of Southern California. Gathering into one presentable volume all the scattered information regarding the salt-water forms, it is further enhanced by 290 drawings, an adequate glossary and a good bibliography. Ich-

thyologists will be especially desirous of possessing a copy.

NORTH AMERICAN ROCK PLANTS, W. H. A. PREECE, *The Macmillan Co., New York, 1937. \$3.50.*

The first of a series of works on indigenous rock-lovers, this beautifully printed and elaborately illustrated discussion of over a hundred alpine effectively disposes of the popular misconception that foreign alpine are more easy to handle in our rock gardens than our own native forms. Rock gardeners will welcome this volume and its promised successor.

PLANT ECOLOGY, HILDA DRABBLE, *Longmans Green & Co., New York, 1937. \$2.50.*

Rarely does the reviewer have the unexpected pleasure of assessing the merits of so satisfactory a performance in book conception and preparation as this British manual of plant ecology. It opens with a short survey of plant structures and functions, and then goes into an extended treatment of plant communities in relation to their habitats and to each other. There are 24 good photographs which effectively illustrate the various types of habitats beyond a chance of misunderstanding. This book should be in every ecologist's library, not perhaps for its profundity, but at least for its happy clarity of presentation.

THE RELATION OF NUTRITION TO HEALTH, AGRICULTURE AND ECONOMIC POLICY, REPORT OF THE MIXED COMMITTEE OF THE LEAGUE OF NATIONS, *Columbia University Press, New York, 1937. \$2.00.*

This very general and comprehensive report will be of value to biometricians interested in international problems of nutrition. It covers a general survey of the problem, the health aspects of nutrition, and a survey of economic and agricultural considerations connected with nutrition policies.

SLEEP CHARACTERISTICS, N. KLEITMAN, F. MULLIN, N. COOPERMAN and S. TITELBAUM, *University of Chicago Press, Chicago, 1937. \$1.00.*

This is a scientific report on certain characteristics of sleep exhibited by 36 persons as recorded by the authors un-

der the encouragement of Dr. A. J. Carlson of the Department of Physiology of the University of Chicago, and published by the university press. The experiment was financed by the makers of Ovaltine and two of the points in the summary have to do with the results of using their product during the experiment. Evidently the University of Chicago is going the Wisconsin Alumni Foundation considerably more than one better in accepting funds for the prosecution of commercial research under its auspices. One wonders why the Wander Co. who sugar-daddied this research were so cheap as not also to finance the publication of the results. It would have been such effective advertising!

THE SPAN OF LIFE, W. M. MALISOFF, *J. B. Lippincott Co., Philadelphia, 1937. \$2.50.*

One finds it difficult to give either an adequate or a just appraisal of this work. The author is a professor in the Graduate School of the University of Philadelphia, and the editor of the magazine "Philosophy of Science." Stealing his light from the fire kindled by Alexis Carrel's "Man, the Unknown," the author has succeeded in producing a stimulating discussion of the problem of beating senescence.

STRANGE REPTILES AND THEIR STORIES, A. HYATT VERRILL, *L. C. Page & Co., Boston, 1937. \$2.50.*

Another volume in the Strange Stories from Nature Series by that intrepid searcher for the strangest incidents about strange animals, A. Hyatt Verrill. Probably it should be rated as very bad ecology, but it certainly qualifies as jolly good popular animal behaviorism. It will make an agreeable addition to the public, and especially the juvenile library. Who can tell when or where some of these unusual stories about unusual animals will set some youngster on the road to future scientific eminence.

SUMMARIES OF DOCTORAL DISSERTATIONS, Vol. I, E. B. FRED, *University of Wisconsin Press, Madison, 1937. \$2.00.*

This, the first of a series of abstracts of dissertations accepted between 1935 and 1936, gives an effective catalog of

the available papers filed in the library of the university, one copy of which is procurable on an inter-library loan basis. College libraries which are adequately catalogued should have a copy of this work thoroughly card-indexed in their files. If each of the great edu-

cational centers followed the same system in regard to their doctoral dissertations, published or unpublished, a tremendous mass of valuable new information would become available for study and comparison.



The Standard for Microscope Glass

Gold Seal Microscope Slides and Cover Glasses

Crystal Clear · Non-Corrosive · Will Not Fog

Gold Seal Slides and Cover Glasses attain a precise uniformity of thickness and plane surface that is unparalleled. They are brilliantly crystal clear and guaranteed against corrosion, fogging or any imperfection, and now priced only a trifle more than inferior grades.

CLAY-ADAMS CO., INC.

25 EAST 26TH STREET, NEW YORK

Our Christmas wish for you is that all through the coming twelve months you'll experience the joys of those who at Christmas time pass out the presents to the family, and that you will receive for your own reward the affection of those whose lives you have enriched. And, in addition, may 1938 bring you the kind of prosperity you need most for your happiness.

THE W. H. KISTLER STATIONERY COMPANY

DENVER, COLORADO

Within Reach of Your
Chapter Finances

INITIATION INSIGNIA

Does your Chapter carry out the Ritual of Initiation properly? In other words, has your Chapter the model Phi Sigma Key and the large Phi Sigma Coat of Arms required by the Ritual? They are both in easy reach of every Chapter's finances.

The Model Key, furnished in two colored gold, costs only \$1.75.

The Coat of Arms, hand-colored on 12x16 heavy paper, only \$1.25.

Address all orders, and make all checks payable to the Secretary, Dr. A. I. Ortenburger, Department of Zoology, University of Oklahoma, Norman, Oklahoma.

PHI SIGMA JEWELRY

Membership keys may be obtained from the National Treasurer through Chapter Treasurers, or directly. In the latter case give your name, Chapter and year of initiation, *plainly*.

REVISED PRICES OF KEYS

These prices given include the Federal Tax when required.

Standard Size (official) 10K gold	
Swivel ring top.....	\$5.50
Stationary ring top.....	5.00
Swivel ring top; mounted as pin; safety clasp.....	6.75
Stationary ring top; mounted as pin; safety clasp.....	6.25
Small Size 10K gold	
Swivel ring top.....	5.00
Stationary ring top.....	4.50
Stationary ring top; mounted as pin; safety clasp.....	5.50
Green gold keys, additional	2.00
White gold keys, additional.....	5.00

To the foregoing prices 10% must be added to meet the changing price of gold.

Address correspondence to:

MR. ERWINE HALL STEWART,
Treasurer of Phi Sigma,
Mesa, Colorado

SUBSCRIPTION BLANK

Detach this page, fill out blank spaces, include check or money order and mail to Mr. Stewart.

Date.....

To MR. E. H. STEWART,
Treasurer of Phi Sigma,
Mesa, Colorado.

Dear Mr. Stewart:

I am enclosing \$..... for my subscription to THE
BIOLOGIST in the class checked on the schedule below:

1 Year: \$ 1.00.....

3 Years: \$ 2.50.....

5 Years: \$ 4.00.....

10 Years: \$ 7.50.....

25 Years: \$15.00.....

Life Sub: \$25.00.....

Name

Address

.....

New Blakiston Books

THE MICROTOMIST'S VADE MECUM 10th EDITION

Includes Both Animal and Plant Microscopic
Anatomy and Technique

11 Illustrations, Appendices
784 Pages, Washable Cloth Covers, \$9.00

In this new edition an important change has been made by the inclusion of plant technique. This section has been written by Dr. D. G. Catcheside of London University. There are new chapters on Frozen Section Staining; Vital Staining. Dr. Conn has recast the whole chapter on Staining. Dr. Duthie has done the same for the article on Blood and Glands. Other sections which have been thoroughly revised are those on Celloidin Embedding by Dr. Richardson; Fats, by Drs. Kay and Whitehead; Protozoological Technique by Dr. Helen Pixell-Goodrich; Nervous System by Drs. Greenfield and Stern. Dr. Theophilus Painter has contributed a masterly article on Animal Chromosome Technique.

The authors of this edition are:

Editors: J. Bronte Gatenby, M.A., Ph.D., Sc.D. (Trinity College, Dublin)
and Theophilus S. Painter, M.A., Ph.D. (Texas University).

Contributors: D. G. Catcheside, Sc.D. (London Univ.); Harold J. Conn, Ph.D. (N. Y. Agric. Station); E. S. Duthie, M.Sc., M.B., Ph.D. (Sheffield Royal Hosp.); Helen Pixell-Goodrich, M.A., Sc.D. (Oxford Univ.); J. G. Greenfield, M.D., F.R.C.P. (Nat. Hosp. Lond.); W. W. Kay, M.Sc., M.B. (Manchester Univ.); Reginald Ludford, Ph.D., Sc.D. (Cancer Research Lab. Lond.); K. C. Richardson, M.Sc. (Univ. College, Lond.); Ruby O. Stern, M.D. (St. Andrew's Hosp., Northampton); Raymond Whitehead, M.Sc., M.D. (Manchester Univ.).

Barnes--Textbook of General Physiology

166 ILLUSTRATIONS, 554 PAGES, WASHABLE CLOTH COVERS, \$4.50
By T. CUNLIFFE BARNES, Sc.D. (Asst. Prof. of Biology, Yale Univ.)

P. Blakiston's Son & Co. Inc. 1012 Walnut Street
Philadelphia, Pa.

A Fraternity Man Is Known



3175-B



3110-SB



3141-SB



3079-B



3205-SB

Sterling	\$7.50	10K G. Gold	\$14.50	Sterling	\$3.50	Sterling	\$8.25	Sterling	\$5.00
10K Gold	19.50			10K Gold	22.25	10K Gold	22.25	10K Gold	22.00

By His Crested Ring

FOR GIFTS

BALFOUR RINGS

Five fine rings are sketched above to show just a few of the 127 styles available. You will find a complete selection in the Blue Book.

Balfour ring designs are smart and new.

Balfour rings are accurately reproduced from deep-cut and beautifully modeled dies.

Balfour rings are priced right and are offered in a price range to fit any budget from \$1.75 to \$50.00.

or for undergraduate use—a beautiful ring enhances the appearance of the hand—and is a pleasing way of displaying your coat of arms.

In the summer a ring is worn continually while the badge is covered or often left on other clothing.

Wear a Crested Ring for Identification!

1937 BLUE BOOK IS FREE

Over one hundred new styles of fine rings are illustrated here for your selection. Other interesting things you will find include:

- Bracelets
- Identification Tags
- Fine Compacts
- Dance Favors
- Tie Chains
- Bill Folds
- Keys and Charms
- Cigarette Cases
- Fine Gifts

Send Post Card Today for
YOUR Free Copy!

Wear A Fine Crested Ring

Official Jeweler to Phi Sigma Society

L. G. Balfour Company

ATTLEBORO

MASSACHUSETTS

In Canada — Henry Birk & Sons in Affiliation — Montreal